

=> FILE REG

FILE 'REGISTRY' ENTERED AT 12:32:48 ON 11 JAN 2007

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(too many hits not to narrow with some test words)

=> DISPLAY HISTORY FULL L1-

FILE 'REGISTRY' ENTERED AT 11:43:33 ON 11 JAN 2007

ACT WEI271/A

L1 STR
L2 SCR 1839
L3 SCR 1929 OR 1918
L4 7386 SEA SSS FUL L1 AND L2 NOT L3

ACT WEI271A/A

L5 STR
L6 SCR 1839
L7 SCR 1929 OR 1918
L8 (7386) SEA SSS FUL L5 AND L6 NOT L7
L9 STR
L10 544 SEA SUB=L8 SSS FUL L9

E POLYACETYLENE/CN

L11 1 SEA POLYACETYLENE/CN

FILE 'HCA' ENTERED AT 11:46:36 ON 11 JAN 2007

L12 15050 SEA L11 OR POLYACETYLENE# OR POLY(A)ACETYLENE#
L13 1284 SEA L10
L14 QUE ELECTROD## OR ANOD## OR CATHOD##
L15 54 SEA L13 AND L14

FILE 'HCAPLUS' ENTERED AT 11:48:05 ON 11 JAN 2007

L16 694 SEA INATOMI ?/AU
L17 2936 SEA HOJO ?/AU
L18 23527 SEA SHIMADA ?/AU
L19 3 SEA L16 AND L17 AND L18
SEL L19 3 RN

FILE 'REGISTRY' ENTERED AT 11:48:21 ON 11 JAN 2007

L20 21 SEA (118148-32-6/BI OR 128346-62-3/BI OR 157289-25-3/BI
L21 16 SEA L20 AND L4
L22 4 SEA L20 AND L10

FILE 'HCA' ENTERED AT 11:49:11 ON 11 JAN 2007

L23 888 SEA L22
L24 49 SEA L23 AND L14

FILE 'REGISTRY' ENTERED AT 11:50:44 ON 11 JAN 2007

L25 157 SEA L4 AND PMS/CI
L26 8 SEA L25 AND L10
L27 0 SEA L20 AND L25

FILE 'HCA' ENTERED AT 11:52:44 ON 11 JAN 2007

L28 7 SEA L26
L29 7 SEA (L10/D OR L10/DP) (L) (POLYM? OR COPOLYM? OR HOMOPOLYM?
OR TERPOLYM? OR RESIN?)
L30 2 SEA L13 AND L12
L31 5799 SEA L4
L32 26 SEA L31 AND L12
L33 230875 SEA BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY?
OR GALVANI? OR WET OR DRY OR PRIMARY OR SECONDARY) (2A) (CE
LL OR CELLS)
L34 5 SEA L32 AND (L33 OR L14)
L35 4 SEA L34 NOT L30
L36 102 SEA L25
L37 6 SEA L36 AND L12
L38 26 SEA L31 AND L12
L39 5 SEA L38 AND (L33 OR L14)

FILE 'LREGISTRY' ENTERED AT 12:03:14 ON 11 JAN 2007

L40 STR

FILE 'REGISTRY' ENTERED AT 12:08:04 ON 11 JAN 2007

L41 50 SEA SUB=L4 SSS SAM L40
L42 1016 SEA SUB=L4 SSS FUL L40

FILE 'HCA' ENTERED AT 12:10:14 ON 11 JAN 2007

L43 454 SEA L42
L44 1 SEA L43 AND L12

FILE 'REGISTRY' ENTERED AT 12:11:29 ON 11 JAN 2007

L45 37 SEA C18H16O4S4
L46 1 SEA L45 AND L21

FILE 'HCA' ENTERED AT 12:12:49 ON 11 JAN 2007

L47 2 SEA L46
L48 2124 SEA L21
L49 12 SEA L48 AND L12
L50 3 SEA L49 AND (L33 OR L14)
L51 6999 SEA (SI(W)O OR TI(W)O OR AMIDO# OR METAL####(A) (SULFUR#
OR SULFIDE#)) (3A) (BOND? OR LINK? OR JOIN? OR CONNECT?)
L52 58915 SEA (COORDINAT? OR CHEM# OR CHEMICAL? OR COVALENT?) (2A) BO

ND?

L53 0 SEA L31 AND L51
 L54 22 SEA L31 AND L52
 L55 3 SEA L54 AND (L33 OR L14)

FILE 'LREGISTRY' ENTERED AT 12:20:20 ON 11 JAN 2007

L56 STR L1

FILE 'REGISTRY' ENTERED AT 12:23:20 ON 11 JAN 2007

L57 7 SEA SUB=L4 SSS SAM L56
 L58 275 SEA SUB=L4 SSS FUL L56
 SAV L58 WEI271B/A
 L59 19 SEA L58 AND L25

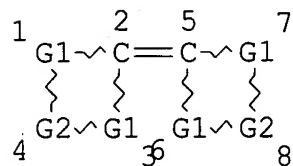
FILE 'HCA' ENTERED AT 12:27:16 ON 11 JAN 2007

L60 8 SEA L59
 L61 119 SEA L58
 L62 0 SEA L60 AND (L33 OR L14)
 L63 11 SEA L61 AND (L33 OR L14)
 L64 37 SEA 1840-2002/PY,PRY AND L15
 L65 14 SEA L28 OR L29
 L66 6 SEA L30 OR L35
 L67 11 SEA L37 OR L39 OR L44 OR L47 OR L50
 L68 8 SEA L60 NOT L55
 L69 11 SEA L63 NOT L55

FILE 'REGISTRY' ENTERED AT 12:32:48 ON 11 JAN 2007

=> D L10 QUE STAT

L5 STR



VAR G1=S/O/SE/TE

REP G2=(1-5) C

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 8

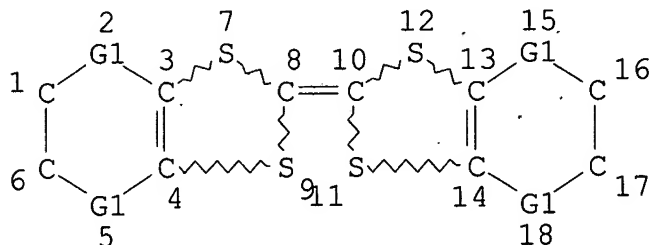
STEREO ATTRIBUTES: NONE

L6 SCR 1839

L7 SCR 1929 OR 1918

L8 (7386) SEA FILE=REGISTRY SSS FUL L5 AND L6 NOT L7

L9 STR



VAR G1=S/O/SE/TE/CH2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

L10 544 SEA FILE=REGISTRY SUB=L8 SSS FUL L9

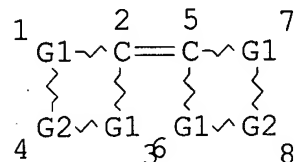
100.0% PROCESSED 2619 ITERATIONS

544 ANSWERS

SEARCH TIME: 00.00.01

=> D L42 QUE STAT

L1 STR



VAR G1=S/O/SE/TE

REP G2=(1-5) C

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 8

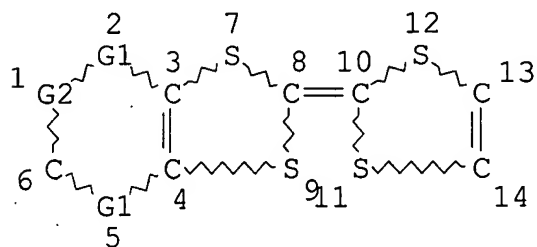
STEREO ATTRIBUTES: NONE

L2 SCR 1839

L3 SCR 1929 OR 1918

L4 7386 SEA FILE=REGISTRY SSS FUL L1 AND L2 NOT L3

L40 STR



VAR G1=S/O/SE/TE

REP G2=(0-3) C

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC 11

NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE

L42 1016 SEA FILE=REGISTRY SUB=L4 SSS FUL L40

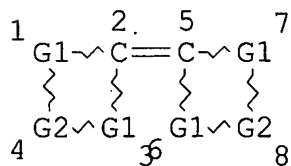
100.0% PROCESSED 6548 ITERATIONS

1016 ANSWERS

SEARCH TIME: 00.00.01

=> D L58 QUE STAT

L1 STR



VAR G1=S/O/SE/TE

REP G2=(1-5) C

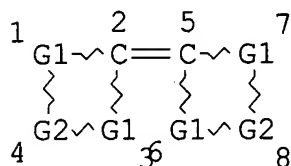
NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

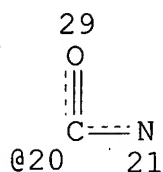
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE
L2 SCR 1839
L3 SCR 1929 OR 1918
L4 7386 SEA FILE=REGISTRY SSS FUL L1 AND L2 NOT L3
L56 STR



G3 9

Si~~X~~O
@12 13Ti~~X~~O
@16 17M~~X~~S
@24 25

VAR G1=S/O/SE/TE
REP G2=(1-5) C
VAR G3=12/16/20/24
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE
L58 275 SEA FILE=REGISTRY SUB=L4 SSS FUL L56

100.0% PROCESSED 7043 ITERATIONS
SEARCH TIME: 00.00.01

275 ANSWERS

=> FILE HCA

FILE 'HCA' ENTERED AT 12:37:44 ON 11 JAN 2007
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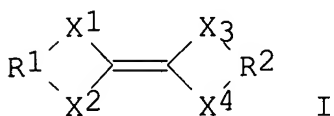
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

=> D L64 1-37 CBIB ABS HITSTR HITIND

L64 ANSWER 1 OF 37 HCA COPYRIGHT 2007 ACS on STN

140:238479 Electrochemical device. Inatomi, Yuu; Shimada, Mikinari;
Hojo, Nobuhiko (Matsushita Electric Industrial Co., Ltd., Japan).
U.S. Pat. Appl. Publ. US 2004045818 A1 20040311, 16 pp. (English).
CODEN: USXXCO. APPLICATION: US 2003-648271 20030827. PRIORITY: JP
2002-250416 20020829.

GI



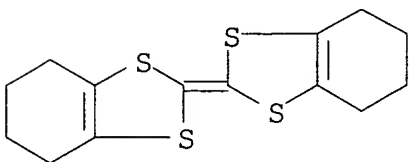
AB The invention concerns an electrochem. device for providing elec. energy by converting an electron transfer involved in an oxidn.-redn. reaction into elec. energy comprising a pos. **electrode**, a neg. **electrode** and an electrolyte, wherein at least one of the pos. and neg. **electrodes** comprises a compd. having a structure represented by the general formula (I), where R1 and R2 are independent of each other and each represents a linear or cyclic aliph. group; X1, X2, X3, and X4 are independent of each other and each represents a S atom, an O atom, a Se atom, or a Te atom; and the aliph. group can comprise ≥ 1 selected from the group consisting of an O atom, a N atom, a S atom, a Si atom, a P atom, and a B atom.

IT **35079-58-4 57512-85-3 66946-48-3**
128346-62-3

(electrochem. device)

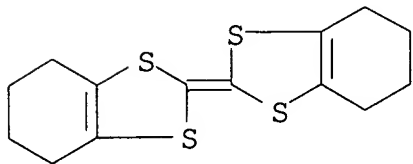
RN 35079-58-4 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)- (9CI) (CA INDEX NAME)



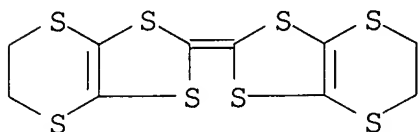
RN 57512-85-3 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)-, radical ion(1+) (9CI) (CA INDEX NAME)



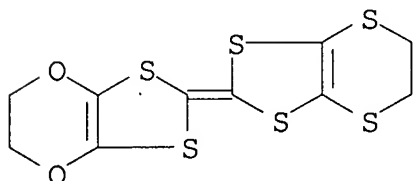
RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



RN 128346-62-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM C25B011-04

INCL 204291000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ST battery **cathode anode**

IT Battery **anodes**
(electrochem. device)

IT 7439-93-2, Lithium, uses 25067-58-7D, Polyacetylene,
tetrathiafulvalene functionalized 31366-25-3, Tetrathiafulvalene
35079-58-4 39302-37-9, Lithium titanium oxide
50708-37-7, Tetramethyl tetrathiafulvalene **57512-85-3**
62921-51-1D, reaction products with polyacetylene **66946-48-3**
99159-48-5 118148-32-6 **128346-62-3** 157289-25-3
157289-26-4 174421-80-8, Cobalt lithium nitride Co_{0.4}Li_{2.6}N
214604-40-7 668421-55-4 668421-56-5 668421-57-6, Lithium
titanium oxide (LiTi₅O₁₂) 668421-58-7 668421-59-8

(electrochem. device)

L64 ANSWER 2 OF 37 HCA COPYRIGHT 2007 ACS on STN

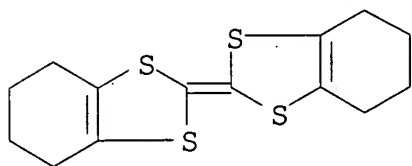
140:130469 Novel methods and compositions for improved electrophoretic display performance. Wu, Zarnge-arh George; Haubrich, Jeanne E.; Wang, Xiaojia; Liang, Rong-chang (Sipix Imaging, Inc., USA). PCT Int. Appl. WO 2004010206 A2 20040129, 38 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, ~~BA~~, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US21681 20030710. PRIORITY: US 2002-396680P 20020717.

AB The invention is directed to novel methods and compns. useful for improving the performance of electrophoretic displays. The methods comprise adding a high absorbance dye or pigment, or conductive particles or a charge transport material into an **electrode** protecting layer of the display.

IT **35079-58-4**
(dyes, pigments, crosslinking sealants and adhesives, and conducting polymer components and novel methods and compns. for improved electrophoretic display performance)

RN 35079-58-4 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)- (9CI) (CA INDEX NAME)



IC ICM G02F001-00

CC 48-7 (Unit Operations and Processes)

Section cross-reference(s): 29, 35, 38, 74, 76

ST electrophoretic display dye pigment conducting particle polymer sealant adhesive; electrophotog photoconductor photoreceptor coated **electrode** metal complex oxide organometallic

IT Adhesives

Coating materials

Crosslinking

Dyes

Electric conductors

Electrodes

Electrophotographic apparatus

Electrophotographic photoconductors (photoreceptors)

Embossing

Lamination

Pigments, nonbiological

Sealing compositions

(dyes, pigments, crosslinking sealants and adhesives, and
conducting polymer components and novel methods and compns. for
improved electrophoretic display performance)

IT 74-82-8D, Methane, triaryl derivs. 81-33-4 85-83-6, Sudan IV
85-86-9, Sudan III 86-74-8D, Carbazole, derivs. 92-52-4D,
Biphenyl, derivs. 129-79-3, 2,4,7-Trinitro-9-fluorenone
288-42-6D, Oxazole, derivs. 288-99-3D, 1,3,4-Oxadiazole,
2,5-bis(4-N,N'-dialkylaminophenyl) 486-25-9, Fluorenone
486-25-9D, Fluorenone, oligomers and polymers of 809-73-4
842-07-9, Sudan yellow 966-88-1D, Benzaldehyde-N,N-
diphenylhydrazone, p-dialkylamino derivs. 1159-53-1 1229-55-6,
Sudan R 1450-63-1, 1,1,4,4-Tetraphenylbutadiene 1484-96-4
1518-16-7 2085-33-8 2417-00-7 2455-14-3 2491-91-0,
2,5-Bis(4-methylphenyl)-1,3,4-oxadiazole 3118-97-6, Sudan II
4197-25-5, Sudan Black B 5152-94-3 7429-90-5, Aluminum, uses
7429-90-5D, Aluminum, alloys 7439-89-6, Iron, uses 7439-89-6D,
Iron, alloys 7440-02-0D, Nickel, alloys 7440-22-4, Silver, uses
7440-22-4D, Silver, alloys 7440-50-8, Copper, uses 7440-50-8D,
Copper, alloys 7440-57-5, Gold, uses 7440-57-5D, Gold, alloys
7440-74-6, Indium, uses 7440-74-6D, Indium, alloys 7782-42-5,
Graphite, uses 9003-39-8, Polyvinylpyrrolidone 9003-55-8,
Styrene-butadiene copolymer 11120-54-0D, Oxadiazole, derivs.
12673-86-8, Antimony tin oxide 14705-63-6 14705-63-6D, alkylated
and alkoxyated derivs. 14752-00-2 15546-43-7,
N,N,N',N'-Tetraphenylbenzidine 20441-06-9 23467-27-8
24937-78-8, Ethylene-vinyl acetate copolymer 26009-24-5,
Poly(p-phenylene vinylene) 33200-26-9 **35079-58-4**
35458-94-7 36118-45-3D, Pyrazoline, Ph dialkylaminostyrene
dialkylaminophenyl derivs. 36118-45-3D, Pyrazoline, derivs.
41584-66-1 43134-09-4 51325-95-2 58280-31-2 58328-31-7,
4,4'-Bis(carbazol-9-yl)biphenyl 58473-78-2 59765-31-0
59869-79-3 69361-50-8D, bis(4-N,N-dialkylamino) 75232-44-9
76185-65-4 82532-76-1 83992-95-4 85171-94-4 89114-90-9
89114-91-0 89991-16-2 93376-18-2, (4-Butoxycarbonyl-9-
fluorenylidene)malononitrile 93975-08-7 93975-09-8 94665-89-1
95270-88-5, Polyfluorene 95993-52-5 96492-45-4 97671-90-4
103079-11-4 105389-36-4, 4,4',4''-Tris(N,N-
diphenylamino)triphenylamine 117944-65-7, Indium zinc oxide
123847-85-8 126213-51-2, Poly(3,4,-ethylenedioxythiophene)
127022-77-9, Hexakis(benzylthio)benzene 138171-14-9 138372-67-5
139092-78-7 139255-17-7 141752-82-1 142289-08-5 150405-69-9

154896-84-1 164534-25-2 174493-15-3 182507-83-1 184101-39-1
 185690-39-5, 4,4',4'''-Tris[N-(1-naphthyl)-N-phenylamino]triphenylamine 203799-76-2 254435-83-1, Sudan Blue
 376386-75-3 482654-95-5 649735-34-2 649735-35-3
 649735-37-5D, 2,5-bis(4-dialkylaminophenyl) derivs. 649735-38-6
 650609-45-3 650609-46-4 650609-47-5 650609-48-6
 (dyes, pigments, crosslinking sealants and adhesives, and
 conducting polymer components and novel methods and compns. for
 improved electrophoretic display performance)

L64 ANSWER 3 OF 37 HCA COPYRIGHT 2007 ACS on STN

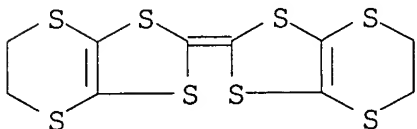
138:408228 High-conductivity organic metals as **electrode**
 materials. Pospelov, Alexander P.; Ved, Marina V.; Sakhnenko,
 Nikolay D.; Alexandrov, Yuriy L.; Shtefan, Viktoria V.; Kravchenko,
 Andrey V.; Kamarchuk, Gennadiy V. (National Technical University
 Kharkov Polytechnical Institute, Kharkov, Ukraine). Materials
 Science, 20(3), 65-72 (English) **2002**. CODEN: MSCJDS.
 ISSN: 0137-1339. Publisher: Wroclaw University of Technology,
 Centre of Advanced Materials and Nanotechnology.

AB **Electrode** properties of TCNQ (7,7,8,8-tetracyanoquinodimethane) and BEDT-TTF (bis-(ethylenedithio)tetrathiafulvalene) derivs. are considered. The BEDT-TTF-based org. **electrode** materials were produced by electrochem. technique. **Electrodes** with TCNQ salts were obtained by thermal or evapn. method. Polarization and impedance investigations have shown the high **electrode** activity of the BEDT-TTF based materials in irreversible electrochem. processes. TCNQ-based OM sensitivity to pH as well as **electrode** surface resistance vary depending on gaseous phase compn. The latter circumstance is quite prospective for applications of org. metals in anal. control devices.

IT **66946-48-3**, Bis-(ethylenedithio)tetrathiafulvalene
 (derivs.; high-cond. org. metals as **electrode**
 materials)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 29, 79

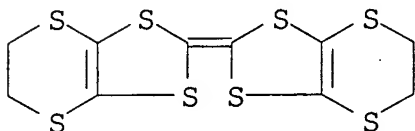
ST molten salt org metal **electrode** material electrosynthesis

IT Gas sensors

- (Pt **electrode** modified with evapd. org. metals for gases)
- IT Sensors
(electrochem.; Pt **electrode** modified with evapd. org. metals for gases)
- IT **Electrodes**
(high-cond. org. metals as **electrode** materials)
- IT Salts, uses.
(molten; high-cond. org. metals as **electrode** materials)
- IT Electric capacitance
(of Pt **electrode** modified with (ET)₂Mo₆O₁₉ in H₂SO₄)
- IT Cyclic voltammetry
(of Pt **electrodes** bare and modified with (ET)₂Mo₆O₁₉ in H₂SO₄)
- IT 7664-93-9, Sulfuric acid, uses
(cyclic voltammetry of Pt **electrodes** bare and modified with (ET)₂Mo₆O₁₉ in H₂SO₄)
- IT **66946-48-3**, Bis-(ethylenedithio)tetrathiafulvalene
(derivs.; high-cond. org. metals as **electrode** materials)
- IT 12390-22-6
(electrosynthesis of high-cond. org. metals as **electrode** materials in soln. contg.)
- IT 68-12-2, DMF, uses 2537-36-2, Tetramethylammonium perchlorate
(electrosynthesis of high-cond. org. metals as **electrode** materials in soln. contg.)
- IT 134116-05-5P
(electrosynthesis of high-cond. org. metals as **electrode** materials in soln. contg. tetracyanoquinodimethane or bis-(ethylenedithio)tetrathiafulvalene derivs. on)
- IT 7440-06-4, Platinum, uses
(electrosynthesis of high-cond. org. metals as **electrode** materials in soln. contg. tetracyanoquinodimethane or bis-(ethylenedithio)tetrathiafulvalene derivs. on)
- IT 1518-16-7
(high-cond. org. metals as **electrode** materials)
- L64 ANSWER 4 OF 37 HCA COPYRIGHT 2007 ACS on STN
137:300400 In situ electrochemical STM of charge-transfer complex on Cu(1 1 1). Xu, Qing-Min; Zhang, Bin; Wan, Li-Jun; Wang, Cheng; Bai, Chun-Li; Zhu, Dao-Ben (Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Surface Science, 517(1-3), 52-58 (English) **2002**. CODEN: SUSCAS. ISSN: 0039-6028. Publisher: Elsevier Science B.V..
- AB Adsorption and adlayer structures of ferrite magnetic anion [Fe(C₂O₄)₃]³⁻, org. π -electron donor bis(ethylenedithio)tetrathiafulvalene (bedt-ttf) and charge-transfer complex (bedt-ttf)₅(H₃O)Fe(C₂O₄)₃·CH₂Cl₂ were investigated by

electrochem. scanning tunneling microscopy on Cu(1 1 1) **electrode** surfaces in aq. HClO₄ soln. [Fe(C₂O₄)₃]³⁻ formed a (4+4) structure with a characteristic propeller shape for each anion and that bedt-ttf adlayer had a (4+6) symmetry. For the complex, [Fe(C₂O₄)₃]³⁻ and bedt-ttf co-adsorbed on Cu(1 1 1) surface and yielded a well-defined 2D network, in which one [Fe(C₂O₄)₃]³⁻ interacted with 3 bedt-ttf mols.

IT **66946-48-3**, Bis(ethylenedithio) tetrathiafulvalene
(structure of charge-transfer complex on Cu(1 1 1) compared to)
RN 66946-48-3 HCA
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



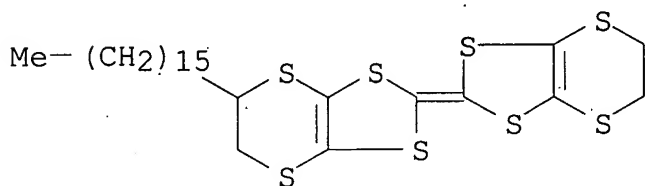
CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 78
IT 2944-66-3, Ferric oxalate **66946-48-3**, Bis(ethylenedithio) tetrathiafulvalene 468757-00-8
(structure of charge-transfer complex on Cu(1 1 1) compared to)

L64 ANSWER 5 OF 37 HCA COPYRIGHT 2007 ACS on STN
137:55738 An approach for fabrication of junctions with Langmuir-Blodgett films incorporated between molecular **electrodes**. Troitsky, V. I.; Berzina, T. S.; Dalcanale, E.; Fontana, M. P. (University of Parma, Department of Physics and INFN, Parma, 43100, Italy). Thin Solid Films, 405(1-2), 276-289 (English) **2002**. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science S.A..

AB Langmuir-Blodgett (LB) assemblies composed of monolayers of different compds. alternating in a predetd. sequence are potential candidates for development in the field of nanoelectronics. However, their poor mech. stability restricts the possibility of fabrication of interconnected electronic elements because LB films can be easily destroyed during the deposition of metal **electrodes**. In this work, we present a technique for the fabrication of junctions for the elec. characterization of one-component LB films and LB assemblies enclosed between thin mol. **electrodes**. The mol. **electrodes** are produced using LB films of a charge-transfer salt. Such an application of these films became possible due to considerable improvements in their cond., quality of deposition and stability in comparison with the properties of films of similar compns. studied previously. Lateral patterning of **electrodes** is carried out by the

irradn. of conductive films with an electron beam, which results in the loss of their cond. In this way, it is possible to prep. the samples for elec. investigations without any damage to incorporated LB films. The LB films of barium stearate, polycyanoacrylate, mixt. of surfactant donor and acceptor, porphyrins, as well as the LB assemblies composed of thin layers of these compds. deposited in various sequences were enclosed between the mol. **electrodes** and studied. Probable conduction mechanisms are discussed on the basis of obtained data.

- IT **126223-47-0**, Hexadecyl-bis(ethylenedithio)tetrathiafulvalene
(fabrication of junctions with Langmuir-Blodgett films
incorporated between mol. **electrodes**)
- RN 126223-47-0 HCA
- CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5-hexadecyl-5,6-dihydro- (9CI) (CA INDEX NAME)



- CC 76-14 (Electric Phenomena)
Section cross-reference(s): 66
- ST Langmuir Blodgett multilayer mol **electrode** junction elec
cond
- IT Films
(elec. conductive; fabrication of junctions with
Langmuir-Blodgett films incorporated between mol.
electrodes)
- IT Electric conductivity
Electric current-potential relationship
Electrodes
Langmuir-Blodgett multilayers
(fabrication of junctions with Langmuir-Blodgett films
incorporated between mol. **electrodes**)
- IT Electric conductors
(films; fabrication of junctions with Langmuir-Blodgett films
incorporated between mol. **electrodes**)
- IT Electron beams
(irradn.; fabrication of junctions with Langmuir-Blodgett films
incorporated between mol. **electrodes**)
- IT 6865-35-6, Barium stearate 111432-24-7 **126223-47-0**,
Hexadecyl-bis(ethylenedithio)tetrathiafulvalene 130420-96-1
215172-98-8, 1,1,2-Trichloro-1,3-butadiene-heptyl cyanoacrylate

copolymer 233275-48-4
(fabrication of junctions with Langmuir-Blodgett films
incorporated between mol. **electrodes**)

L64 ANSWER 6 OF 37 HCA COPYRIGHT 2007 ACS on STN

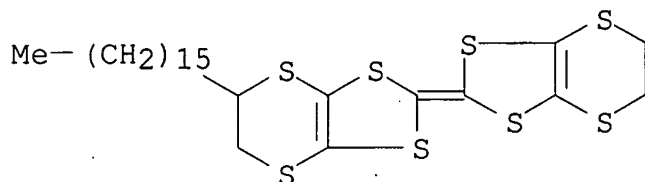
135:350954 Electrical properties of Langmuir-Blodgett films enclosed between molecular **electrodes**. Berzina, T. S.; Troitsky, V. I.; Fontana, M. P. (University of Parma, Department of Physics and INFM, Parma, 43100, Italy). Materials Science & Engineering, C: Biomimetic and Supramolecular Systems, C15(1-2), 315-317 (English) **2001**. CODEN: MSCEEE. ISSN: 0928-4931. Publisher: Elsevier Science B.V..

AB A novel approach is proposed and realized for the fabrication of junctions for elec. measurements with enclosed Langmuir-Blodgett (LB) assemblies between super thin mol. **electrodes**. The mol. **electrodes** are produced from LB films of charge-transfer salts. Lateral patterning of the **electrodes** is carried out by the irradiation of conductive films with an electron beam, which results in the loss of their conductivity. It is possible to prepare in this way the samples for elec. studies without any damage of incorporated LB films. The LB assemblies of different structures were studied. Probable conduction mechanisms are discussed.

IT **126223-47-0**, Hexadecylbis(ethylenedithio)tetrathiafulvalene (elec. properties of Langmuir-Blodgett films enclosed between mol. **electrodes** of LB films of charge-transfer salts after electron beam patterning)

RN 126223-47-0 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5-hexadecyl-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-2 (Electric Phenomena)
Section cross-reference(s): 66

IT Films
(elec. conductive; elec. properties of Langmuir-Blodgett films enclosed between mol. **electrodes** of LB films of charge-transfer salts after electron beam patterning)

IT Electric conductivity
Electric current-potential relationship
Langmuir-Blodgett films

Tunnel junctions

(elec. properties of Langmuir-Blodgett films enclosed between mol. **electrodes** of LB films of charge-transfer salts after electron beam patterning)

IT Electric conductors

(films; elec. properties of Langmuir-Blodgett films enclosed between mol. **electrodes** of LB films of charge-transfer salts after electron beam patterning)

IT Electron beams

(irradn.; elec. properties of Langmuir-Blodgett films enclosed between mol. **electrodes** of LB films of charge-transfer salts after electron beam patterning)

IT 57-11-4, Stearic acid, processes 111432-24-7 **126223-47-0**
, Hexadecylbis(ethylenedithio)tetrathiafulvalene 130420-96-1
215172-98-8, 1,1,2-Trichloro-1,3-butadiene-heptyl cyanoacrylate
copolymer 233275-48-4

(elec. properties of Langmuir-Blodgett films enclosed between mol. **electrodes** of LB films of charge-transfer salts after electron beam patterning)

L64 ANSWER 7 OF 37 HCA COPYRIGHT 2007 ACS on STN

135:311431 A successive dry-wet process for fabricating conductive thin film of bis(ethylenedithio)tetrathiafulvalene salt. Miura, Y. F.; Tovar, G. E. M.; Ohnishi, S.; Hara, M.; Sasabe, H.; Knoll, W. (Frontier Research System, RIKEN (The Institute of Physical and Chemical Research), Wako, 351-0198, Japan). Thin Solid Films, 393(1,2), 225-230 (English) **2001**. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science S.A..

AB Conductive thin films of a bis(ethylenedithio)tetrathiafulvalene (BEDT-TTF) salt were constructed by a successive dry-wet process, which is a combination of the ultra-high vacuum (UHV) deposition of neutral BEDT-TTF mols. and an electrochem. doping process that uses an aq. soln. of LiClO₄ as the electrolyte. The optimal temp. of the BEDT-TTF deposition source is 80°, which gives a uniform coverage of the substrate without any decompn. The doping starts at the **electrode**/film interface, proceeds outwards from the interface and is completed after 5-7 h between the **electrode** gaps. The change in the surface plasmon resonance spectroscopy (SPRS) curve upon doping is best fitted by varying the dielec. const. of the BEDT-TTF film while keeping the thickness of the film const. The cond. of the doped BEDT-TTF film along the film plane was in the range 10⁻³-10⁻⁴ S cm⁻¹.

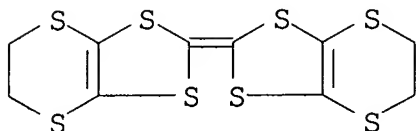
IT **66946-48-3**, BEDT-TTF

(successive dry-wet process for fabricating conductive thin film of bis(ethylenedithio)tetrathiafulvalene salt using lithium perchlorate in electrochem. doping)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-

b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-2 (Electric Phenomena)

Section cross-reference(s): 28, 72

IT 7791-03-9, Lithium perchlorate **66946-48-3**, BEDT-TTF

(successive dry-wet process for fabricating conductive thin film of bis(ethylenedithio)tetrathiafulvalene salt using lithium perchlorate in electrochem. doping)

L64 ANSWER 8 OF 37 HCA COPYRIGHT 2007 ACS on STN

134:185656 White-colour electroluminescence from porous-silicon diodes capped with organic conductive adduct. Lara, J. Antipan; Kathirgamanathan, P. (Centre for Electronic Materials Engineering, School of EEIE, South Bank University, London, SE1 0AA, UK). IEE Proceedings: Optoelectronics, 147(5), 363-369 (English) **2000**. CODEN: IPOPE8. ISSN: 1350-2433. Publisher: Institution of Electrical Engineers.

AB Org. charge-transfer conductive adducts of tetrathiafulvalene (TTF) and bis (ethylenedithio) tetrathiafulvalene (ET) are proposed as materials for top elec. contacts in porous-Si-based light-emitting devices. Semitransparent conductive adduct coatings were produced by impregnating PSi layers with a soln. contg. the desired adduct. Improvement in brightness (2.5 + 103 fold) and luminous efficiency (104 fold) were achieved. Devices made with top contacts of TTF(NO3)0.55 and ET (NO3)0.67 emit white light whereas those made with TTFI0.71 and TTF(SCN)0.45 emit yellow light. Internal luminous efficiency of 1.41 mW-1 was obtained for ET(NO3)0.67-capped devices. The carrier injection was found to obey a space-charge-limited current model.

IT **100822-24-0**

(white-color electroluminescence from porous-silicon diodes capped with org. conductive adduct)

RN 100822-24-0 HCA

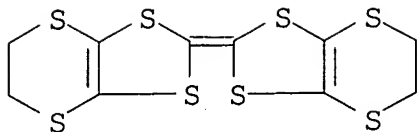
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-, radical ion(1+), nitrate (9CI) (CA INDEX NAME)

CM 1

CRN 82428-14-6

CMF C10 H8 S8

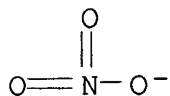
CCI RIS



CM 2

CRN 14797-55-8

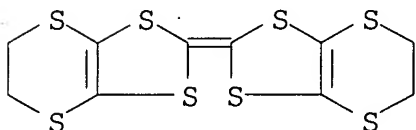
CMF N O3



- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
- ST white LED porous silicon diode capped org conductive adduct;
tetrathiafulvalene deriv capping **electrode** LED white
porous silicon; current voltage LED white tetrathiafulvalene deriv
capping porous silicon
- IT Electric contacts
Electric current-potential relationship
Electrodes
Electroluminescent devices
Space charge
(white-color electroluminescence from porous-silicon diodes
capped with org. conductive adduct)
- IT 7429-90-5, Aluminum, uses 7440-55-3, Gallium, uses 7440-74-6,
Indium, uses 55327-11-2 55976-60-8 58910-77-3 71156-77-9
100822-24-0
(white-color electroluminescence from porous-silicon diodes
capped with org. conductive adduct)
- L64 ANSWER 9 OF 37 HCA COPYRIGHT 2007 ACS on STN
132:7827 Point contact spectroscopy of organic conductors. Kamarchuk,
G. V.; Khotkevich, A. V.; Bagatsky, V. M.; Kravchenko, A. V.
(Institute for Low Temperature Physics and Engineering, Academy of
Sciences of Ukraine, Kharkov, 310164, Ukraine). ACS Symposium
Series, 730 (Spectroscopy of Superconducting Materials), 196-215
(English) **1999**. CODEN: ACSMC8. ISSN: 0097-6156.
Publisher: American Chemical Society.
- AB A review with 39 refs. on homo - and heterocontacts of org.
conductor β -(BEDT-TTF)2I3 and [(C2H5)4N]0.5[Ni(dmit)2] were

investigated at 4.2 K. The I-V characteristics of the contacts and their first $dV/dI(V)$ and second derivs. $d^2V/dI^2(V)$ (point-contact spectra) were measured in the voltage range 0-250mV. The expts. for contacts oriented in different crystallog. directions were carried out. The spectra measured on contacts with the current flow in the plane of the org. mol. layers display features caused by the interaction between the electrons and intramol. vibrations. The spectra of the samples with the axis perpendicular to the BEDT-TTF layers have maxima reflecting the predominating contribution of the anion I3 to the scattering of charge carriers in such point contacts. So, the interaction of electrons with intramol. vibrations of org. conductors was demonstrated directly. Point-contact spectra of layered org. conductors were shown to be essentially anisotropic. The transition to heterojunctions with a superconducting inclusion is obsd. at $T=4.2K$ with increasing confining force between the **electrodes**. The values of the energy gap for the org. superconductor and the excess current of the heterocontacts were calcd. The relation between the intensity of the electron-vibrational interaction and conducting properties of the materials under investigation was obtained. The criterion for the synthesis of new org. superconductor is discussed.

IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
(layer of; point contact spectroscopy of org. conductors)
RN 66946-48-3 HCA
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-0 (Electric Phenomena)
Section cross-reference(s): 75
IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
(layer of; point contact spectroscopy of org. conductors)
L64 ANSWER 10 OF 37 HCA COPYRIGHT 2007 ACS on STN
130:189145 Method of manufacturing organic/polymer electroluminescent device. Zyung, Taehyoung; Jung, Sang-don; Choi, Kang-hoon (Electronics and Telecommunications Research Institute, S. Korea). U.S. US 5876786 A **19990302**, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-919929 19970828. PRIORITY: KR 1996-35936 19960828.
AB Methods of manufg. electroluminescent devices are described which entail prepg. a transparent substrate; depositing a transparent layer on the substrate; forming a plurality of transparent

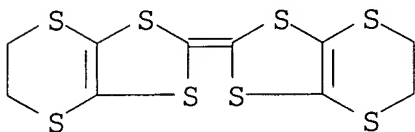
electrodes on selected portions of the substrate by patterning the layer; depositing a first film comprising a first charge transfer material on the resulting structure; depositing an emissive layer on the first film; depositing a second film comprising a second charge transfer material on the emissive layer; depositing a metal layer on the second film; and forming a plurality of metal **electrodes** on selected portions of the second film by patterning the metal layer. Forming the film consisting of a charge transfer complex or charge transfer salt between the org./polymer electroluminescent layer and **electrodes** for injecting electrons and holes increases the electroluminescent quantum efficiency.

IT **66946-48-3**, Bis(ethylenedithio)-tetrathiafulvalene
120120-58-3

(org./polymer electroluminescent device fabrication)

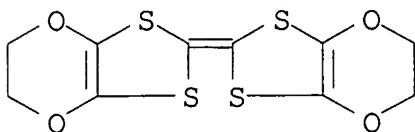
RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



RN 120120-58-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dioxin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM B05D005-06

INCL 427064000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 50926-11-9, Indium tin oxide

(**electrode**; org./polymer electroluminescent device fabrication)

IT 193-44-2, Tetrathiatetracene 198-55-0, Perylene. 1518-16-7, 7,7,8,8,-Tetracyano-p-quinodimethane 31366-25-3, Tetrathiafulvalene 54627-88-2, 1-Methyl-1,4-dithianium 55259-49-9, Tetramethyltetraselenafulvalene 62025-91-6D, metal compds. with tetra-n-butylammonium **66946-48-3**,

Bis(ethylenedithio)-tetrathiafulvalene 98507-06-3 101683-17-4
118148-29-1 **120120-58-3**
(org./polymer electroluminescent device fabrication)

L64 ANSWER 11 OF 37 HCA COPYRIGHT 2007 ACS on STN

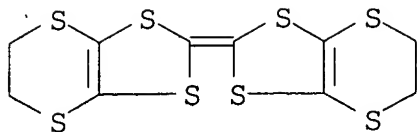
129:336899 Nanoconfined Electrochemical Nucleation of Crystalline
Molecular Monolayers on Graphite Substrates. Hooks, Daniel E.; Yip,
Christopher M.; Ward, Michael D. (Department of Chemical Engineering
and Materials Science, University of Minnesota, Minneapolis, MN,
55455, USA). Journal of Physical Chemistry B, 102(49), 9958-9965
(English) **1998**. CODEN: JPCBFK. ISSN: 1089-5647.
Publisher: American Chemical Society.

AB Real-time in situ at. force microscopy (AFM) was employed to examine
the electrochem. nucleation of epitaxially oriented, cryst.
monolayers of bis(ethylenedithiolo)tetrathiafulvalene triiodide,
(ET)2I3, on the basal plane of highly oriented pyrolytic graphite
electrodes decorated with circular, single-layer-deep pits
created by thermal etching. The nucleation of the monolayers in the
pits is inhibited compared to the contiguous terraces. The time
required for pit filling scales inversely with pit diam., with
nucleation completely suppressed in pits with diams. <100 nm. The
suppression of growth in the pits can be attributed to the surface
discontinuity created by the pit edge that prevents surface
diffusion of ET growth units from the surrounding terrace to the
pit. Consequently, growth of nuclei in the pits is limited by the
amt. of ET arriving in the pit by diffusion directly from soln.
Numerical simulations of aggregate growth in pits illustrate the
influences of transport and the finite boundary created by pit wall
on the evolution of aggregate shape and size during growth, while
revealing the most probable locations for nucleation within the pit.
These studies illustrate the convenience of studying nucleation
processes triggered by electrochem. driven changes in redox state,
the advantage of AFM for probing nucleation in the
nanoscale-confined environments, and the role of transport in
nucleation of ordered films.

IT **66946-48-3**, Bis(ethylenedithiolo)tetrathiafulvalene
(nanoconfined electrochem. nucleation of
bis(ethylenedithiolo)tetrathiafulvalene triiodide cryst.
monolayers on graphite substrates from
bis(ethylenedithiolo)tetrathiafulvalene-tetrabutylammonium
triiodide in acetonitrile solns.)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-
b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 66, 75

IT Adsorbed monolayers

Electrodes

(nanoconfined electrochem. nucleation of bis(ethylenedithiolo)tetrathiafulvalene triiodide cryst. monolayers on graphite substrates from bis(ethylenedithiolo)tetrathiafulvalene-tetrabutylammonium triiodide in acetonitrile solns.)

IT 13311-45-0, Tetrabutylammonium triiodide **66946-48-3**,

Bis(ethylenedithiolo)tetrathiafulvalene

(nanoconfined electrochem. nucleation of bis(ethylenedithiolo)tetrathiafulvalene triiodide cryst. monolayers on graphite substrates from bis(ethylenedithiolo)tetrathiafulvalene-tetrabutylammonium triiodide in acetonitrile solns.)

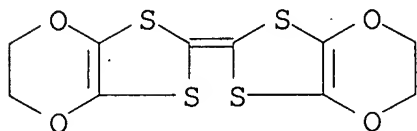
L64 ANSWER 12 OF 37 HCA COPYRIGHT 2007 ACS on STN

126:132320 Colorless, transparent conductive polymer films with ultrathin networks of organic crystals. Tracz, A.; Jeszka, J. K.; Sroczynska, A.; Kryszewski, M.; Schrader, S.; Pfeiffer, K.; Ulanski, J. (Centre of Molecular and Macromolecular Studies, Lodz, 90-363, Pol.). Advanced Materials for Optics and Electronics, 6(5&6), 330-334 (English) **1996**. CODEN: AMELE7. ISSN: 1057-9257. Publisher: Wiley.

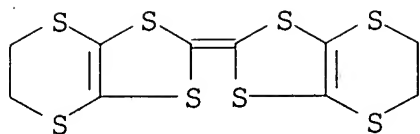
AB The possibilities of increasing the transparency of conductive org. polymeric composites obtained by growing cryst. conductive networks in situ are discussed and new methods of prepn. of practically colorless conductive polymer films are presented. We show that in most cases the color which appears during the prepn. of a conducting composite by reticulate doping is not directly related to the conducting network, which usually consist of relatively well-formed microcrystals, but results instead from the additive mols. present in the polymer matrix as less organized aggregates or a molecularly dispersed phase. By an appropriate choice of prepn. conditions or electrochem. one can get rid of the strongly absorbing part of the complex so that the absorption in the visible range can be substantially reduced without losing cond. and without deterioration of the conductive network. These phenomena are demonstrated on polycarbonate with fine networks of bis(ethylenedioxy)tetrathiafulvalene bromide or chloride (BEDO-TTF) iodine and bromine salts

obtained by casting or spin coating in order to obtain thin homogeneous films, e.g. to prep. **electrodes** for electro-optical investigations. Transparent, colorless conductive films 20-2 μm thick (surface resistivity of the order of 103-104 $\Omega/\text{box.}$) have been obtained and the structure of the conductive networks in these materials, their optical properties in the visible and near-IR range as well as their elec. properties are discussed.

- IT **120120-58-3**, Bis(ethylenedioxy)tetrathiafulvalene
(dopant; colorless, transparent conductive polymer films with ultrathin networks of org. crystals)
- RN 120120-58-3 HCA
- CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dioxin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



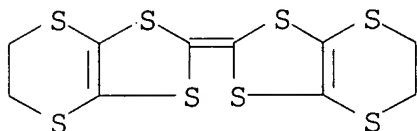
- CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
- IT 7553-56-2, Iodine, uses 7726-95-6, Bromine, uses
120120-58-3, Bis(ethylenedioxy)tetrathiafulvalene
(dopant; colorless, transparent conductive polymer films with ultrathin networks of org. crystals)
- L64 ANSWER 13 OF 37 HCA COPYRIGHT 2007 ACS on STN
125:252933 Battery **electrodes** and secondary batteries thereof.
Inoe, Gakuji; Tsukamoto, Jun (Toray Industries, Japan). Jpn. Kokai
Tokkyo Koho JP 08195199 A2 **19960730** Heisei, 5 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-7234 19950120.
- AB The **electrodes** contain an electron donor compd. capable of
forming cation radicals forming salts with the anions in the
electrolyte. The compd. is selected from pyrene, phenothiazine, and
bis(ethylenedithio)tetrathiafulvalene; the **cathodes** are
LixCoyNil-yO2 (0 < x \leq 1.0, yr \leq 1.0); and the
anodes are short carbon fiber **anodes**.
- IT **66946-48-3**
(electron donor additives for **electrodes** in secondary
lithium batteries)
- RN 66946-48-3 HCA
- CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



- IC ICM H01M004-58
ICS H01M004-02; H01M004-60; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST pyrene battery **electrode** additive; battery **electrode** additive electron donor compd; phenothiazine battery **electrode** additive; bisethylenedithiotetrathiafulvalene battery **electrode** additive; carbon fiber battery **anode** additive; lithium metal mixed oxide **cathode** additive; cobalt lithium oxide **cathode** additive; nickel lithium oxide **cathode** additive
- IT Carbon fibers, uses
(electron donor additives for carbon fiber **anodes** in secondary lithium batteries)
- IT **Anodes**
(battery, electron donor additives for carbon fiber **anodes** in secondary lithium batteries)
- IT **Cathodes**
(battery, electron donor additives for lithium contg. metal oxide **cathodes** in secondary lithium batteries)
- IT 92-84-2, Phenothiazine 129-00-0, Pyrene, uses **66946-48-3**
(electron donor additives for **electrodes** in secondary lithium batteries)
- IT 12190-79-3, Cobalt lithium oxide (CoLiO₂) 111706-40-2, Cobalt lithium oxide (CoLiO-102) 143778-34-1, Lithium nickel oxide (LiO-1NiO₂) 162004-08-2, Cobalt lithium nickel oxide ((Co,Li,Ni)O₂)
(electron donor additives for lithium contg. metal oxide **cathodes** in secondary lithium batteries)
- L64 ANSWER 14 OF 37 HCA COPYRIGHT 2007 ACS on STN
- 124:357121 Conductive thin films of bis(ethylenedithio)tetrathiafulvalene salt fabricated by a successive dry-wet process. Miura, Yasuhiro F.; Ohnishi, Satomi; Hara, Masahiko; Sasabe, Hiroyuki; Knoll, Wolfgang (Frontier Res. Program, Inst. Phys. Chem. Res. (RIKEN), Saitama, 351-01, Japan). Applied Physics Letters, 68(17), 2447-9 (English) **1996**. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.
- AB Conductive mol. thin films of a BEDT-TTF salt have been fabricated by a successive dry-wet process. Neutral BEDT-TTF mols. were evapd. onto an **electrode**-coated substrate under ultrahigh-vacuum conditions. Then an electrochem. doping process was carried out:

the as-deposited film was immersed in an aq. soln. of LiClO₄ and was doped with ClO₄⁻ anions. The lateral cond. of the film was in the range 10⁻³-10⁻⁴ S/cm at room temp. The authors have demonstrated that the successive dry-wet process has the potential to be a versatile technique to fabricate conductive thin films based on BEDT-TTF salts.

- IT **66946-48-3D**, BEDT-TTF, salts
(conductive thin films of BEDT-TTF salts by successive dry-wet process)
- RN 66946-48-3 HCA
- CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



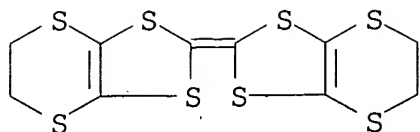
- CC 76-2 (Electric Phenomena)
- IT **66946-48-3D**, BEDT-TTF, salts
(conductive thin films of BEDT-TTF salts by successive dry-wet process)

L64 ANSWER 15 OF 37 HCA COPYRIGHT 2007 ACS on STN

123:352982 Crystal growth of organic charge-transfer complexes by electrocrystallization with controlled applied current. Anzai, Hiroyuki; Delrieu, J. M.; Takasaki, Satoshi; Nakatsuji, Shin'ichi; Yamada, Jun-ichi (Faculty of Science, Himeji Institute of Technology, Hyogo, 678-12, Japan). Journal of Crystal Growth, 154(1/2), 145-50 (English) **1995**. CODEN: JCRGAE. ISSN: 0022-0248. Publisher: North-Holland.

AB. It is proposed in the past that in electrocrystn. of charge-transfer complexes the current applied through the **electrodes** must be controlled and kept proportional to the surface area of the growing crystal to keep the growth rate of the surface layers const. to obtain good quality crystals with no secondary nucleation of new crystals or defects. Large and good quality crystals of κ-(BEDT-TTF)2Cu(SCN)2, (TMTTF)2Br and (TMTSF)2X (X = ClO₄, PF₆ and AsF₆) obtained by electrocrystn. with controlled applied current were flatter than the ones obtained by a const. applied current.

- IT **66946-48-3**, ET
(electrooxidn. in trichloroethane contg. CuSCN and KSCN or PhPN(CN)₂ and cuprous halides)
- RN 66946-48-3 HCA
- CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 75

IT **66946-48-3**, ET

(electrooxidn. in trichloroethane contg. CuSCN and KSCN or PhPN(CN)₂ and cuprous halides)

L64 ANSWER 16 OF 37 HCA COPYRIGHT 2007 ACS on STN

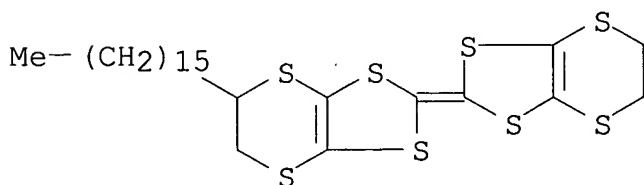
123:271962 On the degradation of conducting Langmuir-Blodgett films. Carrara, S.; Gussoni, A.; Erokhin, V.; Nicolini, C. (Inst. Biophys., Univ. Genoa, Genoa, 16153, Italy). Journal of Materials Science: Materials in Electronics, 6(2), 79-83 (English) **1995**. CODEN: JSMEEV. ISSN: 0957-4522. Publisher: Chapman and Hall.

AB D.c. through conducting Langmuir-Blodgett films was obsd. as a function of the applied voltage and a.c. as a function of frequency. In some cases voltage-current characteristics appeared to be quasi-ohmic but in other cases they exhibited tunnelling-like behavior. This phenomenon was interpreted as being due to the progressive detachment of the film from the micro-electrodes, as confirmed by measurements of the cond. as a function of time. This interpretation was also confirmed by estg. the tunnelling barrier parameters from voltage-current characteristics, by cond. measurements before and after thermal treatment of the samples and by cond. measurements of samples stored in air and under vacuum.

IT **126223-47-0**, Hexadecylbis(ethylenedithio)tetrathiafulvalene (degrdn. of conducting Langmuir-Blodgett films of hexadecylbis(ethylenedithio)tetrathiafulvalene)

RN 126223-47-0 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5-hexadecyl-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-2 (Electric Phenomena)

IT **126223-47-0**, Hexadecylbis(ethylenedithio)tetrathiafulvalene (degrdn. of conducting Langmuir-Blodgett films of

hexadecylbis(ethylenedithio)tetrathiafulvalene)

L64 ANSWER 17 OF 37 HCA COPYRIGHT 2007 ACS on STN

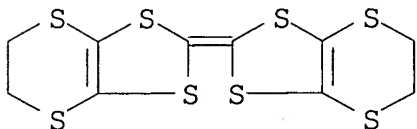
121:288489 Electrocrystallization of an Ordered Organic Monolayer: Selective Epitaxial Growth of β -(ET)2I3 on Graphite. Hillier, Andrew C.; Maxson, Jeffery B.; Ward, Michael D. (Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, 55455, USA). Chemistry of Materials, 6(12), 2222-6 (English) 1994. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB The authors report electrochem. and in situ at. force microscopy observations of the formation of a new class of cryst. org. monolayer, which consists of a conductive org. salt contg. bis(ethylenedithiolo)tetrathiafulvalene (ET), on highly oriented pyrolytic graphite (HOPG). Growth of this monolayer accompanies the electrochem. oxidn. of ET in the presence of the I3- anion at a freshly cleaved HOPG **electrode**. The monolayer covers large areas of the graphite substrate (>100 μm^2) and can be removed at potentials **cathodic** of the ET/ET+ couple. High resoln. AFM imaging of the monolayer and a 15.5 Å monolayer thickness are consistent with the formation of a single (001) layer of β -(ET)2I3, with the long axes of the ET mols. oriented nearly perpendicular to the graphite basal plane. The preferential formation of β -(ET)2I3 over other polymorphs is a consequence of favorable epitaxial interactions between the overlayer lattice and that of the graphite substrate, and is manifest in selective growth of bulk β -(ET)2I3 crystals on this **electrode** surface. Controlled deposition of conducting mono- and multilayer films can be achieved in the presence of strong interfacial interactions during nucleation, suggesting a route to the fabrication of electronic devices based upon mol. design principles.

IT **66946-48-3**, Bis(ethylenedithiolo)tetrathiafulvalene (electrochem. oxidn. on graphite in acetonitrile contg. tetrabutylammonium triiodide)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 75

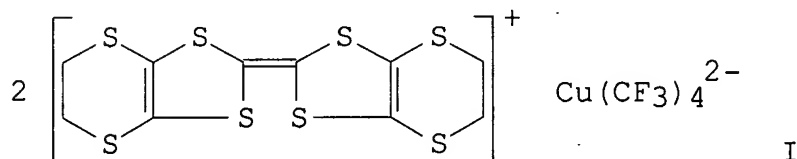
IT Surface structure
(of bis[bis(ethylenedithiolo)tetrathiafulvalene] (triiodide) on

- graphite **electrode**)
- IT Epitaxy
(selective, of bis[bis(ethylenedithio)tetrathiafulvalene]
(triiodide) on graphite **electrode**)
- IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
(electrochem. oxidn. on graphite in acetonitrile contg.
tetrabutylammonium triiodide)
- IT 7782-42-5, Graphite, uses
(electrocrystn. and selective epitaxial growth of
bis(ethylenedithio)tetrathiafulvalenium (triiodide) on
electrode of)

L64 ANSWER 18 OF 37 HCA COPYRIGHT 2007 ACS on STN

121:255761 The first organic cation-radical salt superconductor ($T_c = 4$ K) with an organometallic anion: superconductivity, synthesis and structure of $\kappa\text{L}-(\text{BEDT-TTF})_2\text{Cu}(\text{CF}_3)_4\cdot\text{TCE}$. Schlueter, John A.; Geiser, Urs; Williams, Jack M.; Wang, H. Hau; Kwok, Wai-Kwong; Fendrich, John A.; Carlson, K. Douglas; Achenbach, Crystal A.; Dudek, James D.; et al. (Chem. Div., Argonne Natl. Lab., Argonne, IL, 60439, USA). Journal of the Chemical Society, Chemical Communications (13), 1599-600 (English) **1994**. CODEN: JCCCAT. ISSN: 0022-4936.

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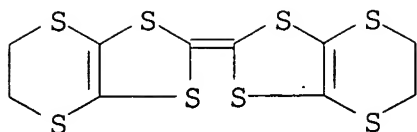


AB Supercond. at ambient pressure with onset $T_c = 4.00 \pm 0.05$ K is reported in a unique org. cation-radical salt $\kappa\text{L}-(\text{ET})_2\text{Cu}(\text{CF}_3)_4\cdot\text{TCE}$, [I; ET = bis(ethylenedithio)tetrathiafulvalene, TCE = 1,1,2-trichloroethane] with the $\text{Cu}(\text{CF}_3)_4$ -species being the first Cu^{3+} and F contg. organometallic anion in an org. superconductor. I was prepd. by the electrocrystn. technique from ET and $[\text{N}(\text{PPh}_3)_2]\text{Cu}(\text{CF}_3)_4$, with ET in TCE in the **anode** chamber. The structure of I was detd. by x-ray crystallog.

IT **66946-48-3**
(reaction of, with bis(triphenylphosphoranylidene)ammonium
tetrakis(trifluoromethyl)cuprate)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 28-18 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 29, 76

IT **66946-48-3**
(reaction of, with bis(triphenylphosphoranylidene)ammonium
tetrakis(trifluoromethyl)cuprate)

L64 ANSWER 19 OF 37 HCA COPYRIGHT 2007 ACS on STN

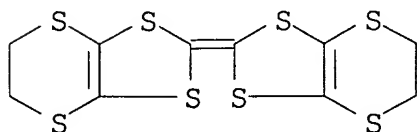
121:249996 Preparation and analytical testing of mediator-containing
photolithographically patterned enzyme membrane **electrodes**
. Wilke, D.; Mueller, H. (Institut Analytik und Umweltchemie,
Martin-Luther-Universitaet Halle-Wittenberg, Merseburg, D-06217,
Germany). Fresenius' Journal of Analytical Chemistry, 349(8-9),
661-5 (English) **1994**. CODEN: FJACES. ISSN: 0937-0633.

AB The application of mediators for measurements with amperometric
enzyme sensors was investigated to improve the behavior of sensors
with respect to interfering substances or for working under
anaerobic conditions. The aim of this investigation is to develop
photolithog. patterned enzyme membranes contg. mediators, which
facilitate the inexpensive technol. prepn. of patterned sensors.
Thin layer platinum **electrodes** were coated with the enzyme
membranes and crosslinked by UV light. Measurements were made in a
wall-jet configuration using flow injection techniques with or
without oxygen in the solns. Optimum properties can be obtained
with glucose oxidase-contg. membranes using tetrathiafulvalenes.
The interfering substances ascorbic acid, uric acid and
acetaminophenol showed no influence on glucose measurements in the
range of physiol. concns. The membrane served as a diffusion
barrier; a decrease in the applied potential to 300 mV vs. SCE also
improved the ratio of the glucose response to the interference
response.

IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-
b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



- CC 9-1 (Biochemical Methods)
Section cross-reference(s): 72
- ST amperometric enzyme **electrode** mediator photolithog
membrane; photolithog patterned enzyme membrane prepn
electrode; glucose detn oxidase immobilized photolithog
membrane
- IT Immobilization, biochemical
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)
- IT **Electrodes**
(bio-, enzyme, amperometric, mediator-contg. photolithog.
patterned enzyme membrane **electrodes**)
- IT 7440-06-4, Platinum, analysis
(**electrodes**; mediator-contg. photolithog. patterned
enzyme membrane **electrodes**)
- IT 9001-37-0, Glucose oxidase
(immobilized; mediator-contg. photolithog. patterned enzyme
membrane **electrodes**)
- IT 50-99-7, D Glucose, analysis
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)
- IT 102-54-5, Ferrocene 106-51-4, Benzoquinone, analysis 303-98-0,
Ubiquinone 50 1271-86-9, (Dimethylamino)methylferrocene
1518-16-7, 7,7,8,8-Tetracyanoquinodimethane 12086-40-7
12240-15-2, Prussian blue 12679-34-4 31366-25-3,
Tetrathiafulvalene 57811-70-8 **66946-48-3**,
Bis(ethylenedithio)tetrathiafulvalene 71938-96-0 84366-81-4
100650-90-6 127030-61-9
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)
- L64 ANSWER 20 OF 37 HCA COPYRIGHT 2007 ACS on STN
121:69048 Electroluminescent and electrochromic elements. Yoshimura,
Tetsuzo; Tatsura, Satoshi; Toyama, Wataru (Fujitsu Ltd, Japan).
Jpn. Kokai Tokkyo Koho JP 05271651 A2 **19931019** Heisei, 6
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-67917
19920326.
- AB An electroluminescent element comprises: (1) an n **electrode**
, (2) an n-polymer, (3) a phosphor, (4) a p-polymer, and (5) a p-
electrode layer, wherein (3) comprises the phosphor monomer,
or the monomers of (2); (3) and (4) form a polymeric conjugated
chain; and the polymers are formed by gas-phase polymn. An
electrochromic element comprises: a **cathode** layer; an
active layer comprising ≥ 1 linear polymer linking an electron
block, a donor, and an acceptor unit; and an **anode** layer,
wherein the manufg. process using a vapor deposition comprises the
steps of: forming a monomol. layer of a 1st monomer on a substrate;

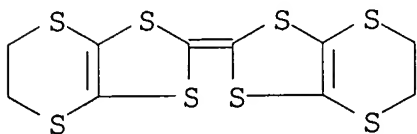
depositing a 2nd monomer onto the 1st monomer layer for forming a dimeric mol. of the 1st and the 2nd monomer; and forming a conjugated polymeric chain by a subsequent step-grown polycondensation. In both the elements, the polymer chains are approx. perpendicular to the **electrode** layers.

IT **66946-48-3**

(electrochromic elements from, as electron-donor component in polymer chains)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM C09K011-06

ICS C09K009-02; G02F001-15; H05B033-14

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38

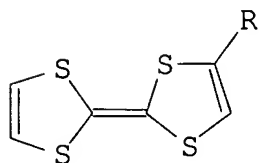
IT 31366-25-3 51501-77-0 **66946-48-3**

(electrochromic elements from, as electron-donor component in polymer chains)

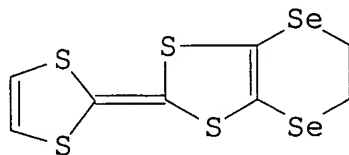
L64 ANSWER 21 OF 37 HCA COPYRIGHT 2007 ACS on STN

120:134336 Chalcogenation of tetrathiafulvalene (TTF): synthesis of alkylthio-TTF and alkylseleno-TTF derivatives and x-ray crystal structure of ethylenediseleno-TTF (EDS-TTF). Moore, Adrian J.; Bryce, Martin R.; Cooke, Graeme; Marshall, Gary J.; Skabara, Peter J.; Batsanov, Andrei S.; Howard, Judith A. K.; Daley, Stephen T. A. K. (Dep. Chem., Univ. Durham, Durham, DH1 3LE, UK). Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (13), 1403-10 (English) **1993**. CODEN: JCPRB4. ISSN: 0300-922X. OTHER SOURCES: CASREACT 120:134336.

GI



I



II

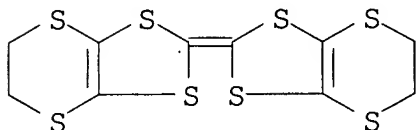
AB The reaction of mono-lithiated tetrathiafulvalene (TTF) with elemental sulfur or elemental selenium at -78°C yields the transient species I ($\text{R} = \text{S}-, \text{Se}-$), resp., which have been trapped with a range of alkyl halides to yield new alkylthio- and alkylseleno-TTF derivs. Reaction of the I ($\text{R} = \text{S}-$) with 2-bromoethanol yields 4-(2-hydroxyethylthio)tetrathiafulvalene which is a particularly versatile building block for the synthesis of a range of new mono-functionalized TTF derivs. contg. ether, ester, acrylate, urethane and vinylthio groups in the side chain. One-pot syntheses of ethylenedithio-TTF and ethylenediseleno-TTF (II) from TTF are reported. The structure of II was been detd. by single crystal x-ray anal. which reveals dimers with mol. planes orthogonal to each other.

IT **66946-48-3P**

(prepn. of)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 28-5 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 75

IT 138682-21-0, 4-(2-Hydroxyethylthio)tetrathiafulvalene
(**cathode**-alkylation, acylation, or mesylation of)

IT 24719-68-4P **66946-48-3P** 82679-06-9P,
4-(Phenylseleno)tetrathiafulvalene 97307-49-8P 128881-69-6P
128881-70-9P 136021-59-5P 136021-62-0P 136021-82-4P
138682-19-6P 138682-20-9P 147677-66-5P 153122-03-3P,
4-(2-Hydroxyethylseleno)tetrathiafulvalene 153122-04-4P
153122-05-5P 153122-06-6P 153122-07-7P 153122-08-8P
153122-09-9P 153122-10-2P 153122-12-4P 153122-13-5P
153122-14-6P 153122-17-9P 153122-18-0P
(prepn. of)

L64 ANSWER 22 OF 37 HCA COPYRIGHT 2007 ACS on STN

118:55306 Amperometric enzyme-modified **electrodes** based on tetrathiafulvalene derivatives for the determination of glucose. Lee, H. S.; Liu, L. F.; Hale, P. D.; Okamoto, Y. (Dep. Chem., Polytech. Univ., Brooklyn, NY, 11201, USA). Heteroatom Chemistry, 3(3), 303-10 (English) **1992**. CODEN: HETCE8. ISSN: 1042-7163.

AB A no. of tetrathiafulvalene (TTF) derivs. were synthesized and

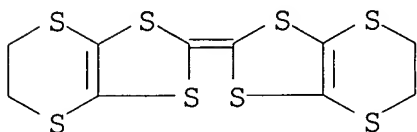
tested as electron transfer mediators in glucose oxidase-based amperometric biosensors. By using cyclic voltammetry and stationary potential expts., it is shown that several of these derivs. can effectively mediate electron transfer from the reduced FAD redox centers of glucose oxidase to a conventional C paste **electrode**. An insol. polymeric electron relay system, based on the covalent attachment of TTF moieties to a highly flexible siloxane polymer, is also shown to facilitate a flow of electrons from the enzyme to the **electrode**. The resulting glucose biosensors function efficiently over a clin. relevant range of glucose concns.

IT **66946-48-3P**

(prepn. and electron transfer mediation properties of, in glucose oxidase-based amperometric **electrode**, structure in relation to)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 9-1 (Biochemical Methods)

Section cross-reference(s): 28, 80

ST glucose detn enzyme **electrode** tetrathiafulvalene mediator; tetrathiafulvalene deriv prepn mediator glucose **electrode**

IT **Electrodes**

(bio-, enzyme, glucose-selective, amperometric, glucose oxidase immobilized on and tetrathiafulvalene derivs. as electron transfer mediators in)

IT Siloxanes and Silicones, uses

(di-Me, tetrathiafulvalene group-contg., as electron transfer mediator, in glucose oxidase-based amperometric **electrode**, structure in relation to)

IT 9001-37-0, Glucose oxidase

(amperometric **electrode** modified with, for glucose detn., tetrathiafulvalene derivs. as electron mediator and)

IT 31366-25-3

(as electron transfer mediator, in glucose oxidase-based amperometric **electrode**, structure in relation to)

IT 50-99-7, Glucose, analysis

(detn. of, by amperometric enzyme-modified **electrode** based on tetrathiafulvalene derivs.)

IT 51501-77-0P 63822-38-8P **66946-48-3P** 75444-58-5P

92885-32-0P 96913-54-1P 96913-56-3P

(prepn. and electron transfer mediation properties of, in glucose oxidase-based amperometric **electrode**, structure in relation to)

IT 31366-25-3DP, Tetrathiafulvalene, derivs.

(prepn. and use as electron transfer mediator in glucose oxidase-based amperometric **electrode**, structure in relation to)

L64 ANSWER 23 OF 37 HCA COPYRIGHT 2007 ACS on STN

117:59923 Thin films of bis[bis(ethylenedithiolo)tetrathiafulvalenium]copper dithiocyanate prepared by an electrodeposition method. Awano, Hiroshi; Kawase, Koji; Asai, Masaru; Ohigashi, Hiroji; Ohshima, Shigetoshi; Akiyama, Kimio; Kato, Masanao (Fac. Eng., Yamagata Univ., Yonezawa, 992, Japan). Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers, 31(6A), 1899-900 (English) **1992**. CODEN: JAPNDE. ISSN: 0021-4922.

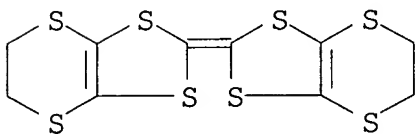
AB Thin films (BEDT-TTF)₂Cu(NCS)₂ are prep'd. by the electrochem. oxidn. of BEDT-TTF at a large c.d. The films are composed of numerous platelets, which are set on edge and packed on the **anodes**. The x-ray diffraction suggests that the product contains both amorphous regions and κ -type and other crystals. The ESR and cond. are discussed in terms of the presence of amorphous regions.

IT **66946-48-3**

(electrochem. oxidn. of, in prepn. of bis[bis(ethylenedithiolo)tetrathiafulvalenium]copper dithiocyanate films)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-1 (Electric Phenomena)

Section cross-reference(s): 72, 75, 77

IT **66946-48-3**

(electrochem. oxidn. of, in prepn. of bis[bis(ethylenedithiolo)tetrathiafulvalenium]copper dithiocyanate films)

L64 ANSWER 24 OF 37 HCA COPYRIGHT 2007 ACS on STN

115:268636 Manufacture of organic superconductor thin film. Hongo, Masafumi (Semiconductor Energy Laboratory Co., Ltd. (SEL), Japan). Jpn. Kokai Tokkyo Koho JP 03096285 A2 **19910422** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-233848

19890908.

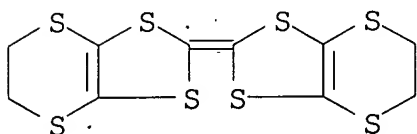
AB A method for manufg. an org. superconductor thin film involves forming an org.-complex (donor) thin film, and reacting the donor with an acceptor to synthesize the org. superconductor. The org. complex thin film may be deposited on a conductive substrate, and may be reacted by electrolysis in an electrolyte contg. the acceptor using the substrate as an **electrode**. The sizes of crystals are increased.

IT **66946-48-3**, BEDT-TTF

(superconductor thin films from, manuf. of, by electrocrystn.)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM H01L039-24

ICS C23C014-12; H01B013-00

ICA H01B012-06

CC 76-4 (Electric Phenomena)

IT 55259-49-9, TMTSF **66946-48-3**, BEDT-TTF

(superconductor thin films from, manuf. of, by electrocrystn.)

L64 ANSWER 25 OF 37 HCA COPYRIGHT 2007 ACS on STN

115:17514 Superconductivity at 2.8 K and 1.5 kbar in

κ -(BEDT-TTF) $2\text{Cu}_2(\text{CN})_3$: the first organic superconductor containing a polymeric copper cyanide anion. Geiser, Urs; Wang, Hau H.; Carlson, K. Douglas; Williams, Jack M.; Charlier, Henry A., Jr.; Heindl, James E.; Yaconi, George A.; Love, Bradley J.; Lathrop, Michael W.; et al. (Chem. Div., Argonne Natl. Lab., Argonne, IL, 60439, USA). Inorganic Chemistry, 30(12), 2586-8 (English) **1991**. CODEN: INOCAJ. ISSN: 0020-1669.

AB (Et) $2\text{Cu}_2(\text{CN})_3$ (Et = bis(ethylenedithio))tetrathiafulvalene) was prepd. by electrocrystn. from Et, CuCN, KCN in 1,1,2-trichloroethane (TCE) with 9.9 vol.% EtOH and 0.1 vol.% H₂O and contg. 18-crown-6 or from $\text{KCu}_2(\text{CN})_3 \cdot \text{H}_2\text{O}$ and ET in TCE with 10% EtOH on a Pt **anode** at c.d. 0.1-0.2 $\mu\text{A}/\text{cm}^2$. The supercond. in org. donor radical salt, κ -(ET) $2\text{Cu}_2(\text{CN})_3$ is reported. This is the first superconducting ET salt with a Cu cyanide complex anion. The inductive onset superconducting transition temp., T_c, is 2.8 K under an applied pressure of 1.5 kbar. (ET) $2\text{Cu}_2(\text{CN})_3$ is monoclinic, space group P2₁/c, with a 16.117(5), b 8.5858(9), c 13.397(3) Å, β 113.42(2)°, Z = 2. The structure contains ET donor mol. dimers (intra-dimer sepn. = 3.43 Å) that are oriented

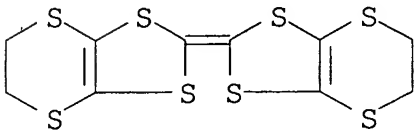
perpendicularly with respect to adjacent dimers, thus forming a similar κ -type network as the highest T_c org. superconductors, κ -(ET)₂Cu[N(CN)₂]Cl (T_c = 12.8 K, 0.3 kbar), κ -(ET)₂Cu[N(CN)₂]Br (T_c = 12.8 K, ambient pressure), and κ -(ET)₂Cu(NCS)₂ (T_c = 10.4 K, ambient pressure). However, the ET mols. are packed slightly less compactly in κ -(ET)₂Cu₂(CN)₃ than in the highest- T_c materials (all intermol. S...S distances are larger than the van der Waals distance, 3.60 Å), resulting in a narrow band width (0.25 eV, compared to .apprx.1 eV in the other κ -phase salts) and thus a semiconducting ground state [ρ (298 K) \approx 0.1 Ω cm, $E_a \approx$ 48 meV] at ambient pressure. Elevated pressure >1.5 kbar is sufficient to convert the salt into a metal and, below T_c = 2.8 K, to a superconductor. The pressure deriv. of T_c , $dT_c/dp \approx$ -1.25 K/kbar, is smaller by a factor of .apprx.2 than in the highest- T_c materials mentioned above. The complex anion is a two-dimensional polymer contg. trigonally-coordinated Cu atoms and bridging cyanide groups. One of the cyanide anions is crystallog. disordered, thus making κ -(ET)₂Cu₂(CN)₃ the first superconductor with a disordered anion (except salts with an incommensurate anion superconductor) and the first ET-based superconductor contg. a polymeric macrocyclic anion. In the absence of the anion disorder, which ordinarily completely suppresses supercond., it is expected that T_c would be much higher, in the neighborhood of the above-mentioned κ -salts (10-13 K). The pressure deriv. of T_c , $dT_c/dp \approx$ -1.25 K/kbar, is smaller by a factor of .apprx.2 than in the highest- T_c materials mentioned above, possibly also because of the anion disorder.

IT 66946-48-3

(oxidn. of, electrochem., on platinum in trichloroethane-ethanol contg. potassium tricyanodicuprate or cuprous cyanide and potassium cyanide, org. donor radical salt from)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-4 (Electrochemistry)

Section cross-reference(s): 75, 76, 78

IT 7440-06-4, Platinum, uses and miscellaneous

(**anode**, electrocrystn. of bis(ethylenedithio)tetrathiafulvalenium tricyanodicuprate on, from trichloroethane-ethanol-contg. bis(ethylenedithio)tetrathiafulvalene and potassium

tricyanodicuprate or cuprous cyanide and potassium cyanide)

IT **66946-48-3**

(oxidn. of, electrochem., on platinum in trichloroethane-ethanol contg. potassium tricyanodicuprate or cuprous cyanide and potassium cyanide, org. donor radical salt from)

L64 ANSWER 26 OF 37 HCA COPYRIGHT 2007 ACS on STN

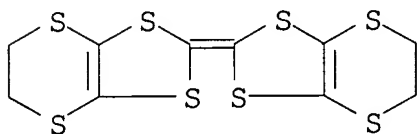
113:171925 A new preparative approach to the organic superconductor bis(ethylenedithio)tetrathiafulvalene triiodide with the critical temperature 7 K. Kushch, N. D.; Buravov, L. I.; Zvarykina, A. V.; Laukhin, V. N.; Khomenko, A. G.; Yagubskii, E. B. (Inst. Khim. Fiz. im. Semenova, Chernogolovka, USSR). Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (7), 1690-1 (Russian) **1990**. CODEN: IASKA6. ISSN: 0002-3353.

AB Electrochem. oxidn. of bis(ethylenedithio)tetrathiafulvalene in CHCl₃ or PhNO₂ contg. Bu₄N⁺ I₃⁻ and KCu(SCN)₂ at a Pt **anode** at 3 μA/cm² gave the desired cryst. modification of the title org. semiconductor.

IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene (electrochem. oxidn. of, in presence of triiodide, org. superconductor by)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 28-5 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 76

IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene (electrochem. oxidn. of, in presence of triiodide, org. superconductor by)

L64 ANSWER 27 OF 37 HCA COPYRIGHT 2007 ACS on STN

113:124924 Memory devices utilizing fulvalene derivative thin films. Sukegawa, Takeshi; Maruno, Toru; Hayashida, Shoichi (Nippon Telegraph and Telephone Corp., Japan). Jpn. Kokai Tokkyo Koho JP 02060166 A2 **19900228** Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-210542 19880826.

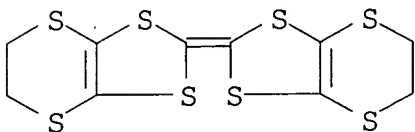
AB A single memory unit of the title memory device comprises a liq. or solid electrolyte, a working **electrode**, a counter **electrode**, and optionally a ref. **electrode**, the working **electrode** bearing a vapor-deposited thin film of a chalcogen-contg. fulvalene deriv. A single unit may also comprise a

liq. or solid electrolyte and 2 sets of **electrodes** where 1 working **electrode** bears a thin film of a chalcogen-contg. vapor-deposited fulvalene deriv. and the other working **electrode** bears a thin film of an org. compd. or organometallic complex having a reversible oxidn.-redn. potential between the oxidn. and redn. potentials of the deposited fulvalene film. The deposited films of the org. compd. or organometallic complex and the fulvalene deriv. are in contact with each other. The fulvalene films have oxidn. and redn. potentials which differ in (abs.) value, extremely rapid oxidn. and redn. reaction rates, are elec. conductive in the oxidized state, and allow switching between the potentials for the oxidn. and redn. reactions. Highly integrated fast response devices can be obtained.

IT **66946-48-3**, Bisethylenedithiotetrathiafulvalene
(electrochem. memory devices using)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM H01L029-28

ICS H01L027-10

CC 76-14 (Electric Phenomena)

Section cross-reference(s): 72, 74

IT 102-54-5, Ferrocene 31366-25-3, Tetrathiafulvalene 55259-49-9,
Tetramethyltetraselenafulvalene **66946-48-3**,
Bisethylenedithiotetrathiafulvalene
(electrochem. memory devices using)

L64 ANSWER 28 OF 37 HCA COPYRIGHT 2007 ACS on STN

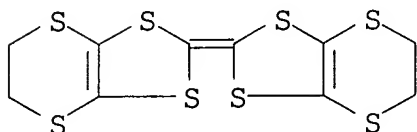
113:124675 Preparation of conductive organic functional films.

Hayashida, Shoichi; Maruno, Toru; Sukegawa, Takeshi (Nippon Telegraph and Telephone Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01294856 A2 **19891128** Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-123093 19880520.

AB The title method comprises steps of formation of an electron-releasing org. film and a solid electrolyte film, formation of **electrodes** or contacts thereof with the films, and electrolytic oxidn. of the org. film in a dry atm. The film forms ion pairs or complex ions from anions in the solid electrolyte film and cations from the oxidized org. film, which are optionally mixed in the solid electrolyte. A yellow tetrathiafulvalene film 0.1 μ m thick and a Et4NClO4-polyoxyethylene films were sequentially

formed on a Nesa glass by soln. application and a Au film was deposited thereon. An org. semiconductor film reddish brown in color was prepd. by electrolytic oxidn. in 30 min at 3 V.

- IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
(elec. conductive films from, by electrolytic oxidn.)
RN 66946-48-3 HCA
CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



- IC ICM C23C014-12
ICS H01L021-363; H01L029-28
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 72
IT 193-44-2 262-30-6, Selenanthrene 31366-25-3, Tetrathiafulvalene
55259-49-9, Tetramethyltetraselenafulvalene **66946-48-3**,
Bis(ethylenedithio)tetrathiafulvalene 128905-56-6
(elec. conductive films from, by electrolytic oxidn.)

L64 ANSWER 29 OF 37 HCA COPYRIGHT 2007 ACS on STN
113:67386 Crystal structure and physical properties of a metallic charge-transfer salt: bis[3,4;3',4'-bis(ethylenedithio)-2,2',5,5'-tetrathiafulvalenium]dicyanoargentate(I) monohydrate. Kurmoo, Mohamedally; Pritchard, Keith L.; Talham, Daniel R.; Day, Peter; Stringer, Andrew M.; Howard, Judith A. K. (Inorg. Chem. Lab., Univ. Oxford, Oxford, OX1 3QR, UK). Acta Crystallographica, Section B: Structural Science, B46(3), 348-54 (English) 1990. CODEN: ASBSDK. ISSN: 0108-7681.
AB A new org. salt, bis[3,4;3',4'-bis(ethylenedithio)-2,2',5,5'-tetrathiafulvalenium] dicyanoargentate (I) monohydrate [(BEDT-TTF)2Ag(CN)2.H2O] (I), was electrochem. prepd. by electrocrystn. on Pt from BEDT-TTF in CH2Cl2 contg. Bu4NAg(CN)2 and its crystal structure and phys. properties detd. The structure of I is different from those of the superconducting (β), metallic (B'') and insulating (β' and α') phases of anhyd. (BEDT-TTF)2X, where X is a triat. monoanion, but is similar to the newly found superconducting salts k-(BEDT-TTF)2I3 and (BEDT-TTF)2Cu(NCS)2. I is monoclinic, space group P21, with a 12.593 (3), b 8.642 (1), c 16.080 (3) Å, $\beta = 109.33 (2)^\circ$, Z = 2, Dx = 1.905 g cm⁻³. The anion array consists of linear chains of three-coordinate Ag atoms linked by H2O to form layers parallel to the BEDT-TTF layers, with which they form alternating stacks parallel to c. I is metallic over the temp.

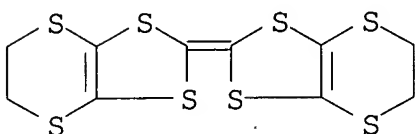
range 150-300 K. The EPR spectrum at 295 K consists of a single line at $g = 2.007$ (3), with a peak-to-peak width H_{pp} of 70 G (0.007 T). Between 50 and 300 K an activated spin susceptibility with $E_a = 0.01$ eV is obsd.

IT **66946-48-3**, BEDT-TTF

(oxidn. of, electrochem., on platinum in dichloromethane contg. tetrabutylammonium dicyanoargentate(1-))

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-4 (Electrochemistry)

Section cross-reference(s): 75, 77, 78

IT 7440-06-4, Platinum, uses and miscellaneous

(**electrode**, oxidn. of bis(ethylenedithio)tetrathiafulvalene on, in dichloromethane contg. tetrabutylammonium dicyanoargentate)

IT **66946-48-3**, BEDT-TTF

(oxidn. of, electrochem., on platinum in dichloromethane contg. tetrabutylammonium dicyanoargentate(1-))

L64 ANSWER 30 OF 37 HCA COPYRIGHT 2007 ACS on STN

113:33146 Preparation of electrically conductive or semiconductive polymer films. Hayashida, Shoichi; Maruno, Toru; Sukegawa, Takeshi (Nippon Telegraph and Telephone Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01294302 A2 **19891128** Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-123094 19880520.

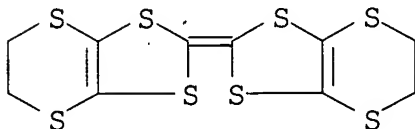
AB The process includes formation of a polymeric film contg. an electron-donor-type org. compd. on an **electrode** substrate, and electrolytic oxidn. of the compd.

IT **66946-48-3**

(electrolytic oxidn. of, in prepn. of elec. conductive polymer films)

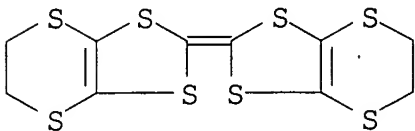
RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM H01B001-12
 ICA B32B007-02; C25B003-02
 CC 76-2 (Electric Phenomena)
 Section cross-reference(s): 38
 IT 31366-25-3 42506-57-0 55259-49-9 56348-14-2 **66946-48-3**
 127929-41-3, 13H-Dibenzo[b,i]phenoselenazine
 (electrolytic oxidn. of, in prepn. of elec. conductive polymer
 films)

L64 ANSWER 31 OF 37 HCA COPYRIGHT 2007 ACS on STN
 112:228033 Manufacture of organic functional film. Hayashida, Shoichi;
 Maruno, Toru; Sukegawa, Takeshi (Nippon Telegraph and Telephone
 Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01289013 A2
19891121 Heisei, 12 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 1988-116864 19880516.
 AB The title manuf. comprises the steps of: (1) forming an
 electron-donor org. compd. film on an **electrode** substrate;
 (2) optionally, contacting or forming an **electrode** on the
 film; and (3) effecting electrolytic oxidn. of the film.
 IT **66946-48-3**
 (semiconductive film from, manuf. of)
 RN 66946-48-3 HCA
 CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-
 b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM H01B001-12
 ICS H01B005-14; H01B012-06; H01B013-00
 ICA C08G061-12; H01L021-363
 CC 76-2 (Electric Phenomena)
 Section cross-reference(s): 38, 72, 75
 IT 31366-25-3 54489-01-9 55259-49-9 **66946-48-3**
 68550-20-9 88682-15-9 97942-32-0 114391-45-6 127139-67-7
 (semiconductive film from, manuf. of)

L64 ANSWER 32 OF 37 HCA COPYRIGHT 2007 ACS on STN
 112:86763 Uniform, non-interacting antiferromagnetic chains of spins in
 the 1:1 bis-ethylenedithiotetrathiafulvalenium salt of a monovalent
 hexarhenium chalcogenide cluster anion: (BEDT-
 TTF).ovrhdot.+(Re6Se5Cl9)-·(C3H7ON)2. Penicaud, Alain;
 Lenoir, Christine; Batail, Patrick; Coulon, Claude; Perrin, Andre
 (Lab. Phys. Solides, Univ. Paris-Sud, Orsay, 91405, Fr.). Synthetic

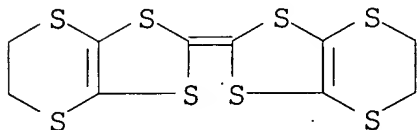
Metals, 32(1), 25-32 (English) 1989. CODEN: SYMEDZ.
ISSN: 0379-6779.

AB Electrooxidn. at a Pt wire **electrode** of
3,4,3',4'-bis(ethylenedithio)-2,2',5,5'-tetrathiafulvalene
(BEDT-TTF) in the presence of tetraethylammonium
hexachloro(penta- μ_2 -selenotri- μ_2 -chloro)hexarhenate[(Et₄N)Re₆S
e₅Cl₉] affords single crystals of a 1:1 fully ionic, half-filled
band and Mott insulator ($\sigma_{300K} = 4 + 10^{-6} \Omega^{-1}$
cm⁻¹) solvate, characterized by isolated uniform antiferromagnetic
stack of spins with $J|| \approx 67$ K. (BEDT-TTF)(Re₆Se₅Cl₉).2DMF
is triclinic, space group P.hivin.1, with a 8.823(1), b 9.920(1), c
12.527(1) Å, α 98.48(1), β 91.48(1), γ
97.87(1)°; d.(calcd.) = 3.66 for Z = 1. Final R = 0.037 for
2140 reflections.

IT **66946-48-3**
(oxidn. of, electrochem., on platinum in dichloromethane-DMF
contg. tetraethylammonium nonachloropentaselehexarhenate)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-
b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-4 (Electrochemistry)
Section cross-reference(s): 75, 76, 77, 78

IT **66946-48-3**
(oxidn. of, electrochem., on platinum in dichloromethane-DMF
contg. tetraethylammonium nonachloropentaselehexarhenate)

L64 ANSWER 33 OF 37 HCA COPYRIGHT 2007 ACS on STN

111:162961 Crystal growth and phase selectivity of organic
superconductors [β -(ET)₂I₃ (T_c = 1.5 K) and
 κ -(ET)₂Cu(NCS)₂ (T_c = 10.4 K)] on graphite **electrodes**

. Wang, Hau H.; Montgomery, Lawrence K.; Husting, Chad A.; Vogt,
Bradley A.; Williams, Jack M.; Budz, Sandra M.; Lowry, Michael J.;
Carlson, K. Douglas; Kwok, Wai Kwong; Mikheyev, Vladimir (Chem.
Mater. Sci. Div., Argonne Natl. Lab., Argonne, IL, 60439, USA).
Chemistry of Materials, 1(5), 484-6 (English) 1989.
CODEN: CMATEX. ISSN: 0897-4756.

AB The first use of graphite **electrodes** for the
electrocrystn. prepn. of 2 of the most extensively studied org.
superconductors derived from bis(ethylenedithio)tetrathiafulvalene
(BEDT-TTF or ET), β -(ET)₂I₃ (T_c = 1.5 K) and
 κ -(ET)₂Cu(NCS)₂ (T_c = 10.4 K), is described. A novel finding

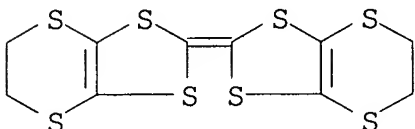
of this study was that the 2 phases commonly encountered in electrochem. syntheses of $(\text{ET})_2\text{I}_3$, the α and β forms, can be selectively prepd. Untreated graphite **electrodes** yield primarily the superconducting β - $(\text{ET})_2\text{I}_3$ ($T_c = 1.5 \text{ K}$) in purified THF; graphite **electrodes** electrolyzed in a 1M H_2SO_4 cleaning soln. afford mainly the semiconducting α - $(\text{ET})_2\text{I}_3$ ($T_M = 135 \text{ K}$). The role of intercalated graphite, $\text{C}_{24n} + \text{HSO}_4 - .2.5\text{H}_2\text{SO}_4$ in promoting this dramatic change is discussed. These results pave the way for the use of graphite as an inexpensive and versatile **electrode** material for the prepn. of org. synthetic metals.

IT **66946-48-3**

(oxidn. of, electrochem., on graphite or platinum in THF contg. tetrabutylammonium(triiodide))

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-4 (Electrochemistry)

Section cross-reference(s): 75, 76, 78

ST graphite **anode** electrocrystn bisethylenedithiotetrathiafulvalene salt; triiodide bisethylenedithiotetrathiafulvalene electrocrystn graphite; isothiocyanatocuprate bisethylenedithiotetrathiafulvalene electrocrystn graphite; superconductor electrocrystn graphite **anode**; semiconductor electrocrystn graphite **anode**; sulfate graphite intercalate **anode** electrocrystn; phase selectivity electrocrystn graphite **anode**

IT **Anodes**

(graphite, for bis[bis(ethylenedithio)tetrathiofulvalene](triiodide) or diisothiocyanatocuprate prepn., effect of treatment in sulfuric acid on, phase selectivity in relation to)

IT Inclusion reaction

(intercalation, electrochem., of sulfuric acid by graphite in **anode** pretreatment for electrocrystn. of bis[bis(ethylenedithio)tetrathiofulvalene](triiodide), phase selectivity in relation to)

IT 7782-42-5, Graphite, uses and miscellaneous

(**anode**, for prepn. of bis[bis(ethylenedithio)tetrathiofulvalene](triiodide) or diisothiocyanatocuprate, effect of electrochem. treatment in sulfuric acid on, phase selectivity in relation to)

- IT 7440-06-4, Platinum, uses and miscellaneous
(**anodes**, electrocrystn. of
bis[bis(ethylenedithio)tetrathiofulvalene](triiodide) on,
comparison with graphite **anodes**)
- IT 12777-87-6P, Graphite sulfate
(formation of, in electrochem. treatment of graphite
electrode by sulfuric acid for **anode** for
electrocrystn. of α -type bis[bis(ethylenedithio)tetrathiofu
lvalene](triiodide))
- IT 7664-93-9, Sulfuric acid, reactions
(intercalation of, electrochem., by graphite for **anodes**
for electrocrystn. of α -type bis[bis(ethylenedithio)tetrath
iofulvalene](triiodide))
- IT **66946-48-3**
(oxidn. of, electrochem., on graphite or platinum in THF contg.
tetrabutylammonium(triiodide))
- IT 89061-06-3P
(prepn. of α - and β -, by electrocrystn. on graphite
and platinum **anodes**, treatment of graphite by sulfuric
acid in relation to)

L64 ANSWER 34 OF 37 HCA COPYRIGHT 2007 ACS on STN

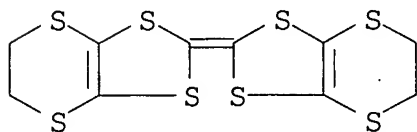
110:154242 The first salt of bis(ethylenedithio)tetrathiafulvalene
containing mono- and dications. Korotkov, V. E.; Kushch, N. D.;
Makova, M. K.; Shibaeva, R. P.; Yagubskii, E. B. (Inst. Khim., Ufa,
USSR). Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (7),
1686-7 (Russian) **1988**. CODEN: IASKA6. ISSN: 0002-3353.

AB Electrochem. oxidn. of bis(ethylenedithio)tetrathiofulvalene (ET0)
at a Pt **anode** at 2 μ A in PhCN contg. (Bu4N)2ZnCl4 at
80° gave (ET)3(ZnCl4)2 (I), which had an elec. cond. of
.apprx.0.4 Ω -1cm-1 at .apprx.20°. X-ray crystallog. of
I showed layers of ET•+ alternating along the c axis with layers
of ET2+ and ZnCl42- ions, and C:C bond lengths which increased and
C-S bond lengths which decreased with increasing pos. charge.

IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
(electrochem. oxidn. of, mixed radical cation-dication salt by)

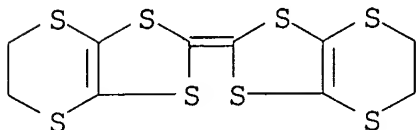
RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-
b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)

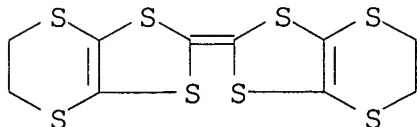


IT **82428-14-6P**
(prepn. of and bond lengths in)

RN 82428-14-6 HCA
 CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-, radical ion(1+) (9CI) (CA INDEX NAME)



CC 28-12 (Heterocyclic Compounds (More Than One Hetero Atom))
 Section cross-reference(s): 75
 IT **66946-48-3**, Bis(ethylenedithio)tetrathiafulvalene
 (electrochem. oxidn. of, mixed radical cation-dication salt by)
 IT **82428-14-6P** 102118-56-9P
 (prepn. of and bond lengths in)
 L64 ANSWER 35 OF 37 HCA COPYRIGHT 2007 ACS on STN
 109:45144 (ET)[Ni(mnt)2], a radical salt of
 bis(ethylenedithio)tetrathiafulvalene. Reith, Walter; Polborn,
 Kurt; Amberger, Eberhard (Inst. Anorg. Chem., Univ. Muenchen,
 Munich, D-8000/2, Fed. Rep. Ger.). Angewandte Chemie, 100(5), 722-3
 (German) **1988**. CODEN: ANCEAD. ISSN: 0044-8249.
 AB The electrochem. synthesis of the (ET)Ni(mnt)2 (I) (where ET =
 bis(ethylenedithio)tetrathiafulvalene and mnt =
 malodinitrylodithiolate) was carried out by the electrochem. oxidn.
 of Ni (mnt)2 in the presence of ET on a Pt **electrode** with
 the c.d. of 1 μ A/cm² in org. solvents. The crystal structure
 electron configuration and stereochem. of I were studied. The
 superconducting properties of I are also mentioned.
 IT **66946-48-3**
 (nickel org. complexe oxidn. in presence of, nickel fulvalene
 complexe formation in)
 RN 66946-48-3 HCA
 CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 72-4 (Electrochemistry)
 Section cross-reference(s): 22, 75, 78
 IT 7440-06-4, Platinum, uses and miscellaneous
 (**anode**, nickel org. complexe oxidn. on, nickel derivs.)

of tetrathiafulvalene prepn. in relation to)

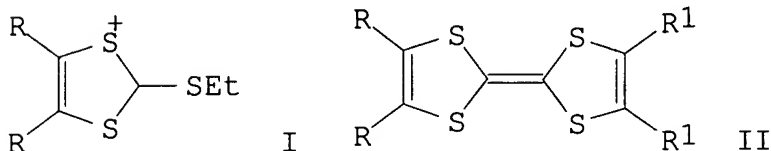
IT **66946-48-3**

(nickel org. complexe oxidn. in presence of, nickel fulvalene complexe formation in)

L64 ANSWER 36 OF 37 HCA COPYRIGHT 2007 ACS on STN

106:176220 Electrochemical synthesis of unsymmetrical tetrathiafulvalene derivatives. Electrocrystallization of their radical cation salts. Morand, J. P.; Brzezinski, L.; Manigand, C. (Ec. Natl. Super. Chim. Phys. Bordeaux, Talence, 33405, Fr.). Journal of the Chemical Society, Chemical Communications (13), 1050-2 (English) **1986**. CODEN: JCCCAT. ISSN: 0022-4936. OTHER SOURCES: CASREACT 106:176220.

GI



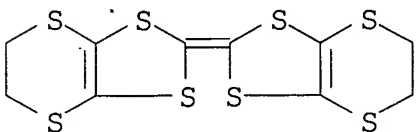
AB Unsym. tetrathiafulvalenes were prepd. through electrochem. coupling of alkylthiodithiolium salts. E.g., electrolysis of a soln. of the dithiolium salts I [R = Me, R2 = S(CH2)2S] on a Pt **electrode** at -1.0 V vs. SCE in MeCN contg. Et4N+ BF4-, followed by heating the products in ClCH2CH2Cl contg. 4-MeC6H4SO3H, gave the unsym. tetrathiafulvalene II [R = Me, R12 = S(CH2)2S] (III) together with the sym. compds. II [R = R1 = Me; R2 = R12 = S(CH2)2S]. Electrocrystn. of III from Cl2CHCH2Cl contg. Bu4NAsF6 at 0° and 10 μA on a Pt **anode** gave the AsF6- salt of the III radical cation as black semiconducting needles.

IT **66946-48-3P**

(prepn. of)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 28-5 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 72

IT 24648-13-3P 50708-37-7P 51501-77-0P **66946-48-3P**
101683-14-1P 102298-93-1P 103954-47-8P 104414-06-4P
107817-01-6P 107817-02-7P
(prepn. of)

L64 ANSWER 37 OF 37 HCA COPYRIGHT 2007 ACS on STN

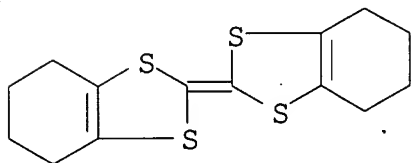
95:46010 Tetrathiafulvalenes as catalysts for the reduction of oxygen in acid electrolytes. Fanghaenel, E.; Schukat, G.; Wiesener, K.; Fuhrmann, A. (Sekt. Chem., Tech. Hochsch. "Carl Schorlemmer", Leuna-Merseburg, Fed. Rep. Ger.). Journal of Power Sources, 6(2), 193-7 (English) **1981**. CODEN: JPSODZ. ISSN: 0378-7753.

AB Tetrathiafulvalenes (TF) were examd. as metal-free electrocatalysts for the redn. of O at monolayer C diffusion fuel-cell **electrodes** in H₂SO₄. The polarizability of the **electrodes** increases in the order: conjugatively connected polymeric TF, catalyst-free **electrodes**, nonconjugatively connected polymeric TF, and monomeric TF. Only **electrodes** covered by conjugatively polymeric TF exhibit a better performance than the active C used as carrier.

IT **35079-58-4**
(catalysts, fuel-cell, active carbon contg., oxygen redn. in acid electrolytes at)

RN 35079-58-4 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 28

ST tetrathiafulvalene fuel cell **cathode** catalyst; oxygen redn
tetrathiafulvalene **cathode** catalyst

IT 5058-44-6 **35079-58-4** 56851-13-9 57527-02-3
61940-46-3 70927-42-3 78368-27-1 78368-28-2 78369-56-9
78413-19-1 78413-22-6

(catalysts, fuel-cell, active carbon contg., oxygen redn. in acid electrolytes at)

=> D L65 1-14 CBIB ABS HITSTR HITIND

L65 ANSWER 1 OF 14 HCA COPYRIGHT 2007 ACS on STN

140:416378 Block copolymer films with electroconductive microdomains, their manufacture, and capacitors using them. Hashimoto, Takeharu; Hasegawa, Hirokazu; Matsushita, Tadashi (Kansai Technology Licensing Organization Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004143297 A2 20040520, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-309983 20021024.

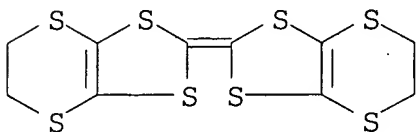
AB The method contains manufg. films from block copolymer solns. contg. 1st compds. (electron donors or acceptors), exposing the membranes to org. solvents for swelling one of microdomains selectively, and exposing 2nd compds. (electron acceptors or donors, contrary to the 1st compds.) to them, thus forming charge-transfer complexes in the microdomain selectively. Nanometer-order capacitors with controlled elec. cond. can be manufd. without photolithog. and chem. etching.

IT **66946-48-3D**, Bis(ethylenedithio)tetrathiafulvalene, derivs.

(charge-transfer complex; manuf. of block **copolymer** films with controlled cond. for capacitors by selective incorporation of charge-transfer complexes into microdomains)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM C08J005-18

ICS C08J007-06; H01B001-12; C08L053-00

CC 76-10 (Electric Phenomena)

Section cross-reference(s): 38

IT 193-44-2D, Tetrathiatetracene, derivs. 253-52-1D, Phthalazine, derivs. 697-66-5D, N-Methylbenzothiazolium, derivs. 1202-34-2D, 2,2'-Bipyridylamine, derivs. 1518-16-7D, derivs. 21979-19-1D, N-Methylquinolinium, derivs. **66946-48-3D**,

Bis(ethylenedithio)tetrathiafulvalene, derivs.

(charge-transfer complex; manuf. of block **copolymer** films with controlled cond. for capacitors by selective incorporation of charge-transfer complexes into microdomains)

L65 ANSWER 2 OF 14 HCA COPYRIGHT 2007 ACS on STN

139:165315 Raman spectroscopy of polymer composites with thin layers of BEDT-TTF trihalide salts. Wojciechowski, R.; Ulanski, J.; Laukhina, E.; Tkacheva, V.; Lefrant, S.; Faulques, E. (Department of Molecular Physics, Technical University of Lodz, Lodz, Pol.). Molecular

Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals, 389, 53-64 (English) 2002. CODEN: MCLCE9. ISSN: 1058-725X. Publisher: Taylor & Francis Ltd..

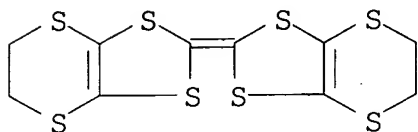
AB Conducting polycryst. layers in polymer composites were prepd. by a 2-step reticulate doping technique, i.e., by exposing a solid soln. of bis(ethylenedithiotetrathia)fulvalene (BEDT-TTF) in the polymer matrix to vapors of solvent contg. I₂ or IBr. Characterization of trihalide anion mixts. in the obtained layers of BEDT-TTF salts was completed by low-frequency Raman spectroscopy. The surface morphol. and the chem. compn. of the layers were investigated by means of SEM with energy dispersive x-ray microanal. and at. force microscopy.

IT **66946-48-3D**, Bis(ethylenedithiotetrathia)fulvalene, trihalide salts

(Raman spectroscopy of **polymer** composites with thin BEDT-TTF trihalide salt elec. conducting polycryst. layers)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)

IT **66946-48-3D**, Bis(ethylenedithiotetrathia)fulvalene, trihalide salts

(Raman spectroscopy of **polymer** composites with thin BEDT-TTF trihalide salt elec. conducting polycryst. layers)

L65 ANSWER 3 OF 14 HCA COPYRIGHT 2007 ACS on STN

133:44466 Membrane formation and conductivity of polymeric bisethylenedithiotetrathiafulvalenes. Wu, Wei-cheng; Shen, Yong-jia (Institute of Fine Chemicals, ECUST, Shanghai, 200237, Peop. Rep. China). Huadong Ligong Daxue Xuebao, 26(1), 107-109 (Chinese) 2000. CODEN: HLI XEV. ISSN: 1006-3080. Publisher: Huadong Ligong Daxue Xuebao Bianjibu.

AB Two kinds of polymeric BEDT-TTFs (bisethylenedithio-tetrathiafulvalenes) were synthesized by polycondensation of bis-hydroxymethyl or bis-Me formylate substituted bisethylenedithio-tetrathiafulvalenes with adipic chloride or hexanediol, resp. Their mol. wts. were measured by GPC. Effects of polymn. on membraning of the polymers were discussed. After oxidn., the CT (charge transfer)-complexes of the polymers with iodine were obtained and their conductivities and conducting stability were measured.

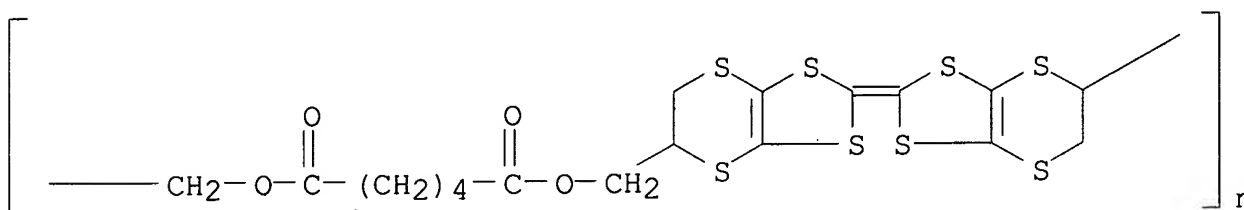
IT **215775-14-7P 274681-32-2P 274681-33-3P**

274681-34-4P

(iodine-doped; membrane formation and cond. of polymeric bisethylenedithiotetrathiafulvalenes)

RN 215775-14-7 HCA

CN Poly[(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)methyleneoxy(1,6-dioxo-1,6-hexanediyl)oxymethylene] (9CI)
(CA INDEX NAME)



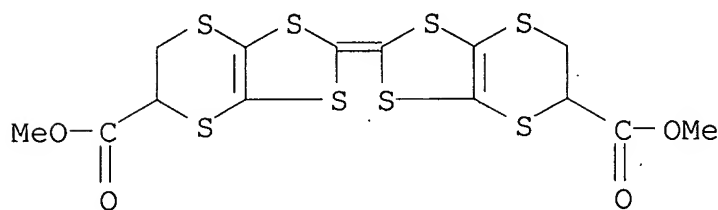
RN 274681-32-2 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin-5-carboxylic acid, 2-[5,6-dihydro-5-(methoxycarbonyl)-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene]-5,6-dihydro-, methyl ester, polymer with 1,6-hexanediol (9CI) (CA INDEX NAME)

CM 1

CRN 274681-31-1

CMF C14 H12 O4 S8



CM 2

CRN 629-11-8

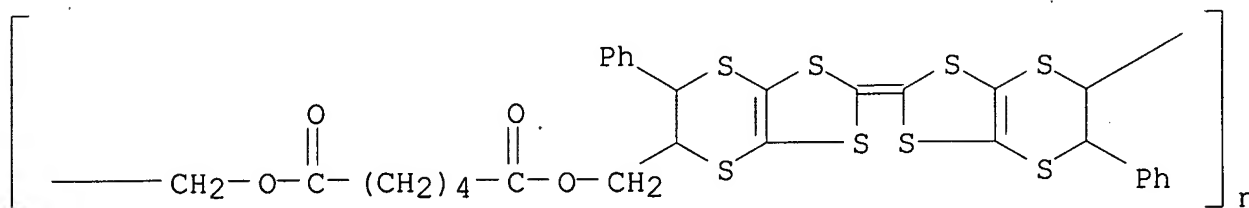
CMF C6 H14 O2

HO-(CH2)6-OH

RN 274681-33-3 HCA

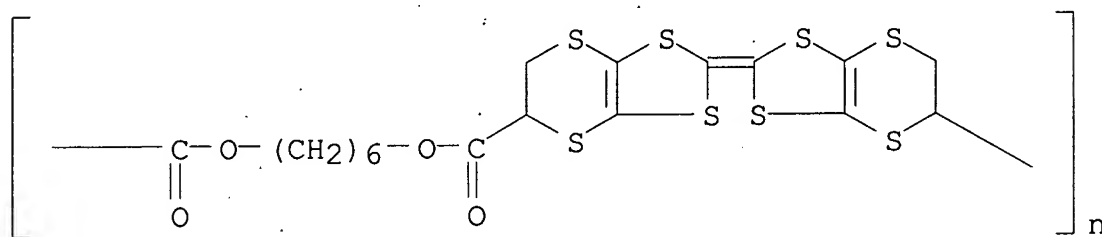
CN Poly[(5,6-dihydro-6-phenyl-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)(5,6-dihydro-6-phenyl-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)methyleneoxy(1,6-dioxo-1,6-hexanediyl)oxymethylene] (9CI)

ylidene)methyleneoxy(1,6-dioxo-1,6-hexanediyl)oxymethylene] (9CI)
(CA INDEX NAME)



RN 274681-34-4 HCA

CN Poly[(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)carbonyloxy-1,6-hexanediylloxycarbonyl] (9CI) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37, 76

IT 215775-12-5P **215775-14-7P** 274681-30-0P

274681-32-2P 274681-33-3P 274681-34-4P

(iodine-doped; membrane formation and cond. of polymeric bisethylenedithiotetrathiafulvalenes)

L65 ANSWER 4 OF 14 HCA COPYRIGHT 2007 ACS on STN

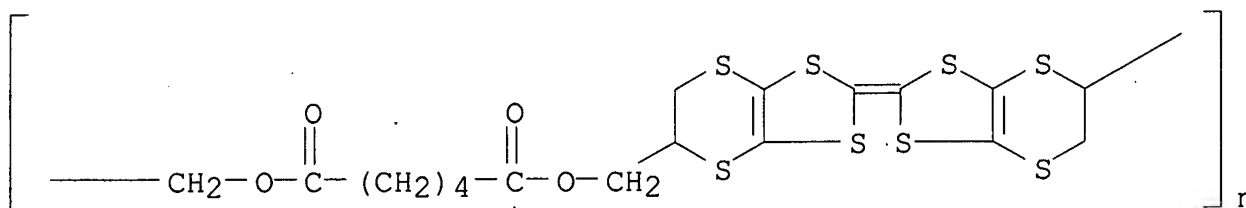
130:4148 Synthesis and properties of polymeric bis(ethylenedithio)tetrathiafulvalenes. Zhao, Weiguo; Shen, Yongjia; Li, Yongfang; Yang, Jing (Inst. Fine Chem., East China Univ. Sci. Technol., Shanghai, 200237, Peop. Rep. China). Chinese Journal of Polymer Science, 16(3), 214-218 (English) 1998. CODEN: CJPSEG. ISSN: 0256-7679. Publisher: Science Press.

AB A polymer contg. the bis(ethylenedithio)tetrathiafulvalene moiety was synthesized and its electrochem. properties were studied by cyclic voltammetry. The charge transfer complexes of the polymer with TCNQ and iodine were obtained by chem. oxidn. in dichlorobenzene. All of them are semiconductors. A film of the polymer was obtained by casting. Its cond., after oxidn. with iodine, is $2.24 + 1-6 \text{ S cm}^{-1}$ and its conducting state is stable in air. 197720-05-1. 197720-06-2P 197720-08-4P 197720-09-5P

197720-11-9P.

IT **215775-14-7P 215775-18-1P**(synthesis and properties of polymeric
bis(ethylenedithio)tetrathiafulvalenes)

RN 215775-14-7 HCA

CN Poly[(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)methyleneoxy(1,6-dioxo-1,6-hexanediyl)oxymethylene] (9CI)
(CA INDEX NAME)

RN 215775-18-1 HCA

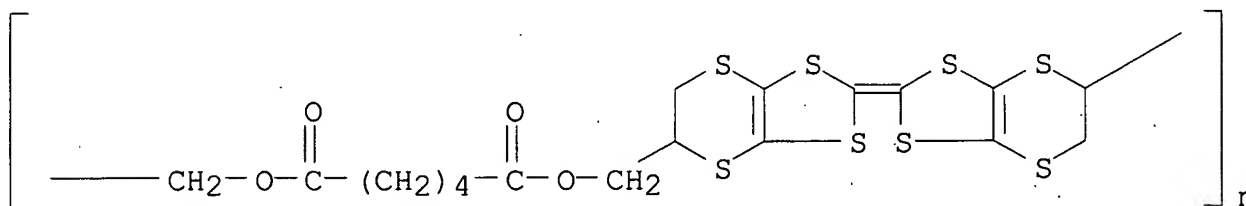
CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis-,
compd. with poly[(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-5-yl-2-ylidene)methyleneoxy(1,6-dioxo-1,6-hexanediyl)oxymethylene] (9CI)
(CA INDEX NAME)

CM 1

CRN 215775-14-7

CMF (C18 H18 O4 S8)n

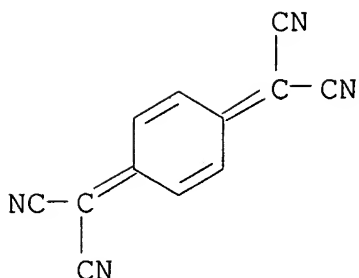
CCI PMS



CM 2

CRN 1518-16-7

CMF C12 H4 N4



CC 35-5 (Chemistry of Synthetic High Polymers)

IT 215775-12-5P **215775-14-7P** 215775-17-0P
215775-18-1P 215775-20-5P 215775-21-6P
 (synthesis and properties of polymeric
 bis(ethylenedithio)tetrathiafulvalenes)

L65 ANSWER 5 OF 14 HCA COPYRIGHT 2007 ACS on STN

127:114662 Electron-molecular vibration coupling in organic charge-transfer salts: application of spectroscopic and Hubbard models. Kozlov, M. E.; Ivanov, V. A.; Yakushi, K.; Tokumoto, M. (Inst. Appl. Phys., Univ. Tsukuba, Tsukuba, 305, Japan). Synthetic Metals, 86(1-3), 2177-2178 (English) 1997. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB Spectroscopic and Hubbard models were used for anal. of vibrational spectra of org. monovalent charge-transfer (CT) salts with dimerized structures. Within the framework of a dimer approach we showed origin of intense IR active electron-vibrational (vibronic) bands and obtained an expression for their frequency shifts relatively to matching Raman active totally sym. vibrations. The theory predicts an important relation between intensities and frequencies of the vibronic bands and is in good agreement with exptl. data for bis(ethylenedithio)-tetrathiafulvalene (BEDT-TTF) based and tetrathiafulvalene (TTF) based CT complexes. Existence of the universal relation between the two easy measurable quantities allows to make a simple evaluation of coupling consts. for the substances directly from the exptl. spectra.

IT **178306-26-8**, 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-, dimer

(electronic-vibrational coupling in org. charge-transfer salts)

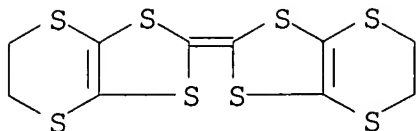
RN 178306-26-8 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-, dimer (9CI) (CA INDEX NAME)

CM 1

CRN 66946-48-3

CMF C10 H8 S8



CC 73-3 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 22

IT 31366-25-3 60622-35-7, Tetrathiafulvalene dimer 66946-48-3, Bis(ethylenedithia)tetrathiafulvalene **178306-26-8**, 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-, dimer (electronic-vibrational coupling in org. charge-transfer salts)

L65 ANSWER 6 OF 14 HCA COPYRIGHT 2007 ACS on STN

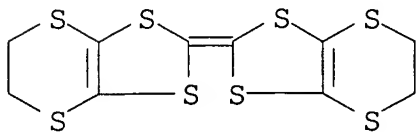
126:350325 Polymorphism in κ -(BEDT-TTF) $2M(CF_3)_4$ (solvent) superconductors. Geiser, Urs; Schlueter, John A.; Williams, Jack M.; Kini, Aravinda M.; Dudek, James D.; Kelly, Margaret E.; Naumann, Dieter; Roy, Thomas (Chemistry and Materials Science Divisions, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL, 60439, USA). Synthetic Metals, 85(1-3), 1465-1466 (English) 1997. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB A new crystallog. modification ($\kappa L'$) was found in the BEDT-TTF: $M(CF_3)_4$ -(solvent ($M = Cu, Ag, Au$)) system. The structure of monoclinic $\kappa L'$ -(BEDT-TTF) $2Cu(CF_3)_4$ (1,2-dibromo-1-chloroethane = DBCE) is reported. It differs from the orthorhombic κL -phase by having all BEDT-TTF mols. tilted in the same direction with respect to the conducting plane normal, whereas in κL the tilt direction alternates between layers.

IT **66946-48-3D**, Bis(ethylenedithio)tetrathiafulvalene, $M(CF_3)_4$ derivs. ($M = Cu, Ag, Au$) (**polymorphism** in κ -(BEDT-TTF) $2M(CF_3)_4$ (solvent) superconductors)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-4 (Electric Phenomena)

Section cross-reference(s): 45

IT **66946-48-3D**, Bis(ethylenedithio)tetrathiafulvalene, $M(\text{CF}_3)_4$ derivs. ($M = \text{Cu}, \text{Ag}, \text{Au}$)

(**polymorphism** in κ -(BEDT-TTF) $2M(\text{CF}_3)_4$ (solvent) superconductors)

L65 ANSWER 7 OF 14 HCA COPYRIGHT 2007 ACS on STN

126:199916 Synthesis and characterization of polymer with bis(ethylenedithio)tetrathiafulvalene side group. Qin, Wei; Zhu, Daoben (Institute Chemistry, Academy Sciences, Beijing, 100080, Peop. Rep. China).. Gaofenzi Xuebao (1), 121-124 (Chinese) 1997. CODEN: GAXUE9. ISSN: 1000-3304. Publisher: Kexue.

AB 6-Methylol-1,3-dithiolo[4,5-b][1,4]dithiin-2-thione was treated with propargyl bromide followed by reaction with thieno[3,4-d]-1,3-dithiol-2-one to give polyacetylene contg. bis(ethylenedithio)tetrathiafulvalene side group. The polymer doped with iodine vapor and iodine soln. had elec. cond. $1.95 + 10^{-5}$ scm⁻¹ and $7.3 + 10^{-9}$ scm⁻¹ resp.

IT **187740-67-6P**
(prepn. and elec. cond. of iodine-doped polyacetylene contg. bis(ethylenedithio)tetrathiafulvalene side group)

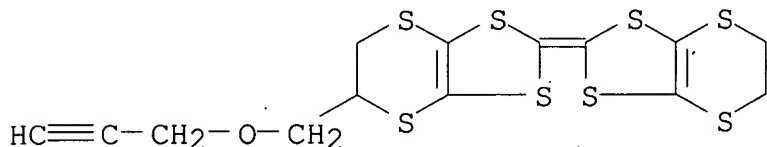
RN 187740-67-6 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-5-[(2-propynyloxy)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 187740-66-5

CMF C14 H12 O S8



CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 76

IT **187740-67-6P**
(prepn. and elec. cond. of iodine-doped polyacetylene contg. bis(ethylenedithio)tetrathiafulvalene side group)

L65 ANSWER 8 OF 14 HCA COPYRIGHT 2007 ACS on STN

126:53328 Design strategies for the preparation of polymeric organic superconductors. Spanler, C. W.; Reynolds, J. R. (Dept. Chemistry, Northern Illinois Univ., De Kalb, IL, USA). Report, AFOSR-TR-96-0365; Order No. AD-A311179, 29 pp. Avail. NTIS From:

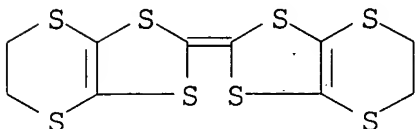
Gov. Rep. Announce. Index (U. S.) 1996, 96(24), Abstr. No. 24-00,382 (English) 1996.

- AB Several copolymers were synthesized in which the known superconducting precursor BEDT-TTF (ET) was incorporated as a formal repeat unit into aliph. and arom. polyesters as well as an aliph. polyurethane. These polymers could be cast as optical quality thin films. All polymers could be oxidized to either monocation or dication forms in soln. with antimony pentachloride, in which all the ET subunits had been oxidized. ET subunits could also be attached as pendant groups on a PMMA backbone with up to 60% incorporation. All of the polymers were thermally stable to above 200°, and were fully characterized by both DSC, TGA, and GPC. Cyclic voltammetry clearly showed that the incorporated ET subunits were electroactive, with two redox peaks showing the successive formation of the radical cation and dication peaks. Room-temp. d.c. conductivities for the polymer films before and after oxidative doping were obtained, with conductivities of the oxidized films generally falling between 20(exp -6) to 10(exp -4) S/cm. Several attempts to incorporate TTF subunits into copolymer formulations proved to be generally unsuccessful, although this research is continuing.

IT **66946-48-3D**, derivs., **polymers**
(superconductors; design strategies for prepn. of
polymeric org. superconductors)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-2 (Electric Phenomena)

IT **66946-48-3D**, derivs., **polymers**
(superconductors; design strategies for prepn. of
polymeric org. superconductors)

L65 ANSWER 9 OF 14 HCA COPYRIGHT 2007 ACS on STN

125:57834 Development of a two-site Hubbard model for analysis of the electron-molecular vibration coupling in organic charge-transfer salts. Kozlov, Mikhail E.; Ivanov, Valery A.; Yakushi, Kyuya (Electrotechnical Laboratory, 1-1-4 Tsukuba, Ibaraki, 305, Japan). Physics Letters A, 214(3,4), 167-174 (English) 1996. CODEN: PYLAAG. ISSN: 0375-9601. Publisher: Elsevier.

AB A two-site Hubbard model has been utilized for the anal. of the intense electron-vibrational bands in the i.r. spectra of org.

charge-transfer (CT) salts with dimerized structures. It is shown that intermol. charge oscillations in totally sym. anti-phase vibrations are accompanied by a decrease of the energy of the highest occupied two-electron state of the dimer. This effect is responsible for frequency shifts of the electron-vibrational bands compared with relevant Raman active modes and can be described by dimensionless coupling consts. The absorption coeff. for the bands was found to be proportional to the frequency shift. Calcd. values are in agreement with the exptl. data on BEDT-TTF based monovalent CT complexes.

IT **178306-26-8**

(two-site Hubbard model for anal. of electron-mol. vibration coupling in org. charge-transfer salts)

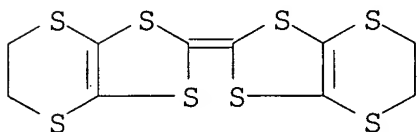
RN 178306-26-8 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-, dimer (9CI) (CA INDEX NAME)

CM 1

CRN 66946-48-3

CMF C10 H8 S8



CC 22-13 (Physical Organic Chemistry)

Section cross-reference(s): 76

IT 66946-48-3, BEDT-TTF 66946-48-3D, BEDT-TTF, charge transfer complexes 82428-14-6 **178306-26-8**

(two-site Hubbard model for anal. of electron-mol. vibration coupling in org. charge-transfer salts)

L65 ANSWER 10 OF 14 HCA COPYRIGHT 2007 ACS on STN

124:303334 Physical properties of some BEDT-TTF cation radical salts with polymeric anions. Graja, Andrzej; Dyachenko, Oleg A. (Inst. Mol. Phys., Polish Acad. Sci., Poznan, 60-179, Pol.). Macromolecular Symposia, 104, 223-49 (English) 1996. CODEN: MSYMEC. ISSN: 1022-1360. Publisher: Huethig & Wepf.

AB The most intensively examd. and promising org. materials to show superconducting properties are ion-radical salts in which a mol. of BEDT-TTF (or shorter ET) serves as an electron donor. ET is capable of creating salts with various anions. The search for an anion species for ET-based org. superconductors is one of the approaches towards making progress in the design of these materials. Polymeric anions, which form a stable layer structure, are esp. useful for

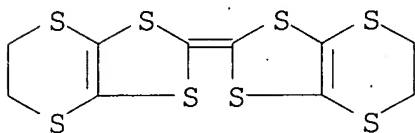
this purpose. Conducting properties of the org. superconductors are detd. mainly by ET packing, but the role of anions is also important. The thickness of anion layers, which effectively alters the interlayer transfer interactions of ET mols., depends upon the anion organization. Since the crit. temp. of the org. superconductor increases with decreasing magnitude of the anisotropy of the intra- and interlayer interaction, the change of the layer thickness gives an opportunity to affect the T_c of the superconductor. In this paper, the authors present characteristic structures of selected ET salts, give a survey of the anions, esp. polyimd. anions, review some more common structural types obsd., and describe some phys. properties of the ET-based org. superconductors contg. polyimd. anions. 61 Refs.

IT **66946-48-3D**, BEDT-TTF, cation radical salts with **polymeric** anions

(phys. properties of)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 76-0 (Electric Phenomena)

Section cross-reference(s): 75

IT **66946-48-3D**, BEDT-TTF, cation radical salts with **polymeric** anions

(phys. properties of)

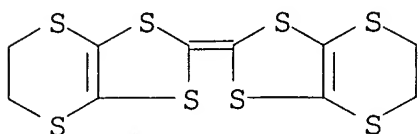
L65 ANSWER 11 OF 14 HCA COPYRIGHT 2007 ACS on STN

124:247585 Superconducting organic polymer films. Ulanski, J.; Jeszka, J. K.; Laukhina, E.; Helberg, H. W. (Div. Polymer Phys., Tech. Univ. Lodz, Lodz, 90-924, Pol.). Macromolecular Symposia, 104, 251-9 (English) 1996. CODEN: MSYMEC. ISSN: 1022-1360. Publisher: Huethig & Wepf.

AB A concept of producing superconducting composites by means of reticulate doping of polymers with low mol. wt. org. superconductors is presented. The obtained polycarbonate films contain around 2 wt.% of BEDT-TTF polyiodides in a form of continuous cryst. network. D.c. and microwave cond. measurements demonstrate, that the as-obtained reticulate composites show semiconducting-type properties. After annealing at optimized conditions a dramatic change occurs and the composites become metallic in the entire temp. range due to a conversion of various phases of the BEDT-TTF polyiodides into the metallic and superconducting β t-phase.

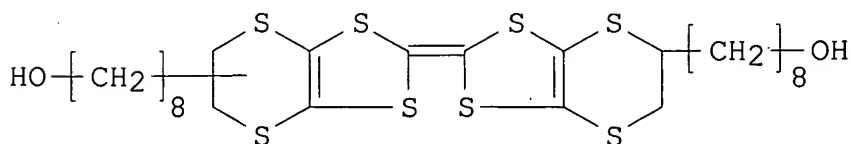
The composites show the superconducting transition below 5 K, as evidenced by magnetoresistance measurements, indicating that the content of the β t-phase microcrystals in the conducting network exceeds the percolation threshold.

- IT **66946-48-3DP**, BEDT-TTF, iodide salts
 (superconducting org. **polymer** films of reticulate-doped
 BEDT-TTF polyiodides in polycarbonate matrix)
- RN 66946-48-3 HCA
- CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



- CC 76-4 (Electric Phenomena)
 Section cross-reference(s): 38
- IT **66946-48-3DP**, BEDT-TTF, iodide salts
 (superconducting org. **polymer** films of reticulate-doped
 BEDT-TTF polyiodides in polycarbonate matrix)
- L65 ANSWER 12 OF 14 HCA COPYRIGHT 2007 ACS on STN
 124:177090 Synthesis, characterization and oxidative doping behavior of copolymers incorporating BEDT-TTF repeat units. Spangler, Charles W.; Zhu, Linfang; Lu, Ziqi; He, Mingqian; Balanda, Peter B.; Reynolds, John R. (Department of Chemistry, Northern Illinois University, DeKalb, IL, 60115, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 36(2), 292-3 (English) 1995. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.

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- AB I was copolymd. with ClCO(CH₂)₂CHMeCH₂COCl, OCN(CH₂)₆NCO, and terephthaloyl chloride to give the corresponding polyesters and polyurethane. The elec. cond. of the doped polymers was detd.
- IT **170211-18-4P**

(synthesis, characterization and oxidative doping behavior of copolymers incorporating BEDT-TTF repeat units)

RN 170211-18-4 HCA

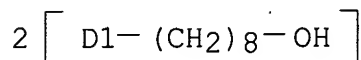
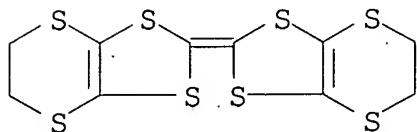
CN 1,3-Dithiolo[4,5-b][1,4]dithiinooctanol, 2-[5,6-dihydro(8-hydroxyoctyl)-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene]-5,6-dihydro-, polymer with 1,6-diisocyanatohexane (9CI) (CA INDEX NAME)

CM 1

CRN 170034-42-1

CMF C26 H40 O2 S8

CCI IDS



CM 2

CRN 822-06-0

CMF C8 H12 N2 O2

OCN- (CH₂)₆-NCO

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 76

IT 170034-43-2P 170211-17-3P **170211-18-4P** 170345-75-2P
170345-76-3P

(synthesis, characterization and oxidative doping behavior of copolymers incorporating BEDT-TTF repeat units)

L65 ANSWER 13 OF 14 HCA COPYRIGHT 2007 ACS on STN

123:314696 Studies toward the design and synthesis of superconducting organic polymers: main chain incorporation of ET subunits.
Spangler, Charles W.; Zhu, Linfang; Hall, Tom J.; Balanda, Peter B.; Reynolds, John R. (Department Chemistry, Northern Illinois University, DeKalb, IL, 60115, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 36(1), 605-6 (English) 1995. CODEN: ACPPAY. ISSN: 0032-3934. Publisher:

American Chemical Society, Division of Polymer Chemistry.

AB Stable processable polymers in which bis(ethylenedithio)tetrathiafulvalene (ET) is incorporated in the repeating unit were synthesized by polymg. an ET group-contg. diol with 3-methyladipoyl chloride, terephthaloyl chloride, or 1,6-diisocyanatohexane. These copolymers show redox behavior in soln. which exactly parallels free ET under similar expts. conditions. Self-assembly under thermal annealing conditions is currently under way to det. the amt. of π -stacking of the oxidized ET segments that can be achieved prior to low temp. cond. studies.

IT **170211-18-4P**

(synthesis of superconducting org. polymers incorporating ET subunits in the main chain)

RN 170211-18-4 HCA

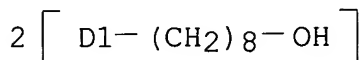
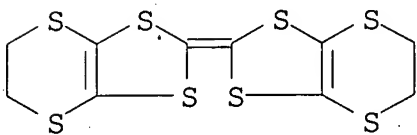
CN 1,3-Dithiolo[4,5-b][1,4]dithiinooctanol, 2-[5,6-dihydro(8-hydroxyoctyl)-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene]-5,6-dihydro-, polymer with 1,6-diisocyanatohexane (9CI) (CA INDEX NAME)

CM 1

CRN 170034-42-1

CMF C26 H40 O2 S8

CCI IDS



CM 2

CRN 822-06-0

CMF C8 H12 N2 O2

OCN- (CH₂)₆ -NCO

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 8, 36, 76

IT 170034-43-2P 170211-17-3P **170211-18-4P** 170345-75-2P
170345-76-3P

(synthesis of superconducting org. polymers incorporating ET subunits in the main chain)

L65 ANSWER 14 OF 14 HCA COPYRIGHT 2007 ACS on STN

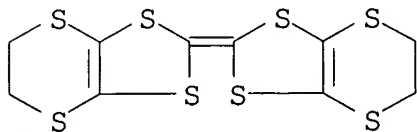
122:276857 Optical absorption of polymer films doped with BEDT-TTF polyiodides. Helberg, H. W.; Staerk, D.; Ulanski, J.; Jeszka, J. K. (Third Phys. Inst., Univ. Goettingen, Goettingen, D-37073, Germany). Acta Physica Polonica, A, 87(4-5), 893-7 (English) 1995. CODEN: ATPLB6. ISSN: 0587-4246. Publisher: Polish Academy of Sciences, Institute of Physics.

AB Conducting reticulate doped polymeric films contg. BEDT-TTF iodide cryst. network were annealed to transform the crystallites into crystal phases with metallic cond. Measured optical absorption spectra show that annealing shifts the absorption band to higher frequencies and increases the transparency of the films. This behavior corresponds to the transformation of the α -phase into the superconducting α t-phase obsd. in (BEDT-TTF)₂I₃ single crystals.

IT **66946-48-3D**, iodide salts
(optical absorption of **polymer** films doped with BEDT-TTF polyiodides)

RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT **66946-48-3D**, iodide salts 89061-06-3
(optical absorption of **polymer** films doped with BEDT-TTF polyiodides)

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=> D L66 1-6 CBIB ABS HITSTR HITIND

L66 ANSWER 1 OF 6 HCA COPYRIGHT 2007 ACS on STN

145:481703 Design and operation of a resistance switching memory cell with diode. Krieger, Juri H.; Spitzer, Stuart (Advanced Micro Devices, Inc., USA). U.S. Pat. Appl. Publ. US 2006245235 A1 20061102, 24pp. (English). CODEN: USXXCO. APPLICATION: US 2005-119973 20050502.

AB The invention relates generally to the design and operation of resistance switching memory cells, and in particular to a memory cell with a diode component. Systems and methodologies are provided for forming a diode component operative (e.g., connected in series) with active and passive layer of a resistance switching memory cell to facilitate programming arrays of memory cells created therefrom. Such a diode component can be part of a memory cell having a passive and active layer. Such an arrangement reduces a no. of transistor-type voltage controls and assocd. power consumption, while enabling individual memory cell programming as part of the array. Also, the system provides for an efficient placement of memory cells on a wafer surface, and increases an amt. of die space available for circuit design.

IT **25067-58-7, Polyacetylene 31366-25-3**

(device active layer; design and operation of a resistance switching memory cell with diode)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

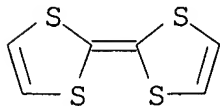
CRN 74-86-2

CMF C2 H2

HC≡CH

RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



INCL 365115000

CC 76-3 (Electric Phenomena)

IT Metallocenes

Polyacetylenes, uses

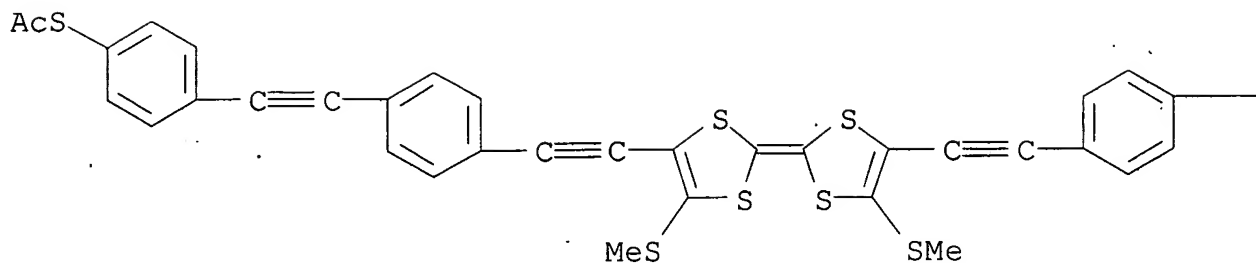
(design and operation of a resistance switching memory cell with

- diode)
- IT 86-28-2, N-Ethylcarbazole 193-44-2, Tetrathiotetracene 574-93-6, Phthalocyanine 670-54-2, Tetracyanoethylene, uses 1518-16-7, Tetracyanoquinodimethane 9003-53-6, Polystyrene 9033-83-4, Poly(phenylene) 10043-11-5, Boron nitride, uses 12162-21-9, Hafnium selenide (HfSe₂) 12299-51-3, Vanadium selenide (VSe₂) 12680-08-9, Lithium titanium sulfide 25013-01-8, Polypyridine 25038-69-1, Polyphenylacetylene 25067-54-3, Polyfuran **25067-58-7, Polyacetylene** 25989-14-4, Polydiphenylacetylene 26009-24-5, Poly(p-phenylene vinylene) 27290-25-1, Polyphthalocyanine 30604-81-0, Polypyrrole **31366-25-3** 82451-55-6, Polyindole 82451-56-7, Polyazulene 108167-10-8 117446-19-2, Hexadecafluorophthalocyanine 126213-51-2, Poly(ethylenedioxythiophene) (device active layer; design and operation of a resistance switching memory cell with diode)
- IT 7429-90-5, Aluminum, uses 7440-32-6, Titanium, uses (**electrode**; design and operation of a resistance switching memory cell with diode)

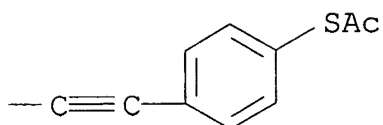
L66 ANSWER 2 OF 6 HCA COPYRIGHT 2007 ACS on STN

- 145:46342 Synthesis and characterization of new type molecular wires with tetrathiafulvalene as redox center. Wang, Erjing; Li, Hongxiang; Hu, Wenping; Zhu, Daoben (Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Journal of Polymer Science, Part A: Polymer Chemistry, 44(8), 2707-2713 (English) 2006. CODEN: JPACEC. ISSN: 0887-624X. Publisher: John Wiley & Sons, Inc..
- AB A new type of mol. wire la-c with tetrathiafulvalene (TTF) units was synthesized and characterized. The UV-vis spectra and electrochem. results showed that comparing with PPE, these polymers had smaller HOMO-LUMO band gap, and the HOMO level of polymer la (-5.05 eV) was closer to the work function energy of Au **electrode**. Thermal stability analyses indicated that these polymers had good thermal stability. All of the results showed that the introduction of TTF units made polymers la-c better candidates for mol. wires than PPE.
- IT **889877-62-7P 889877-63-8P** (model compd.; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)
- RN 889877-62-7 HCA
- CN Ethanethioic acid, S-[4-[[4-[[2-[4-[[4-[[4-(acetylthio)phenyl]ethynyl]phenyl]ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]ethynyl]phenyl]ethynyl]phenyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A



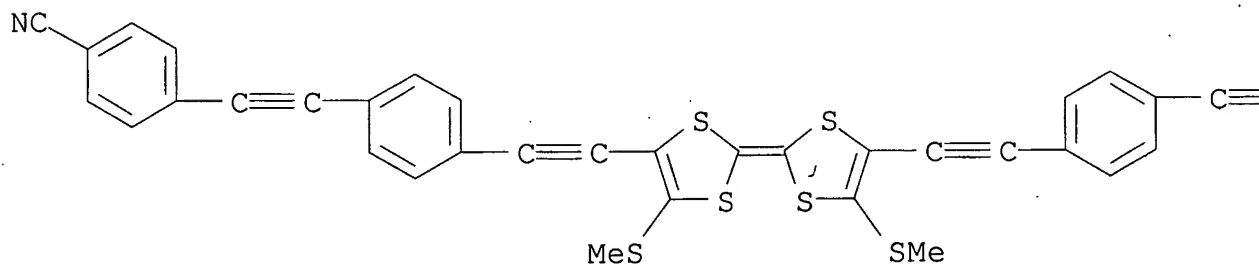
PAGE 1-B



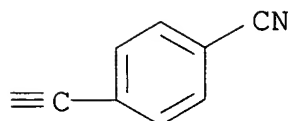
RN 889877-63-8 HCA

CN Benzonitrile, 4-[[4-[[2-[4-[[4-[(4-cyanophenyl)ethynyl]phenyl]ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]ethynyl]phenyl]ethynyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

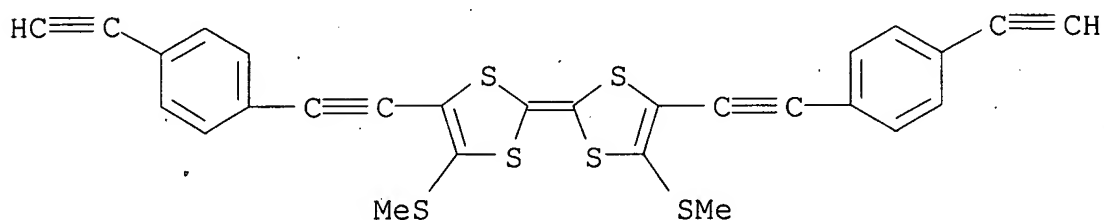


IT 889877-61-6P

(monomer; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

RN 889877-61-6 HCA

CN 1,3-Dithiole, 4-[(4-ethynylphenyl)ethynyl]-2-[4-[(4-ethynylphenyl)ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)- (9CI) (CA INDEX NAME)



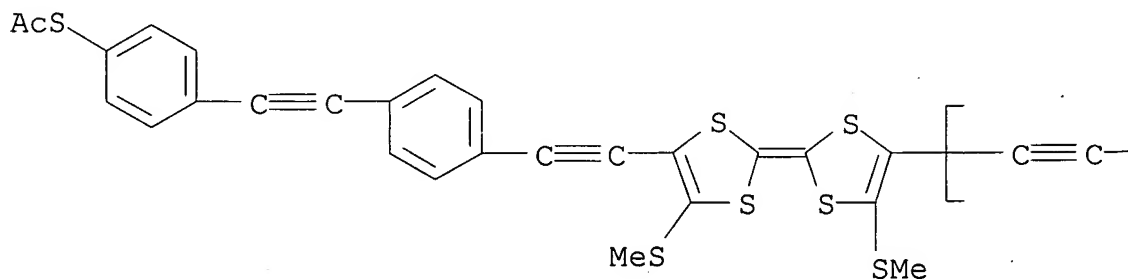
IT 889877-65-0P 889877-66-1P 889877-67-2P

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

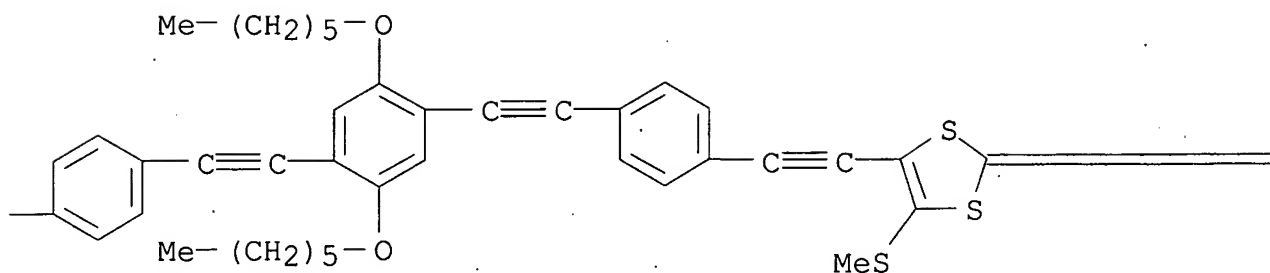
RN 889877-65-0 HCA

CN Poly[[4-(methylthio)-1,3-dithiol-4-yl-2-ylidene][4-(methylthio)-1,3-dithiol-4-yl-2-ylidene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl], α -[[4-[[4-(acetylthio)phenyl]ethynyl]phenyl]ethynyl]- ω -[2-[4-[[4-(acetylthio)phenyl]ethynyl]phenyl]ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]- (9CI) (CA INDEX NAME)

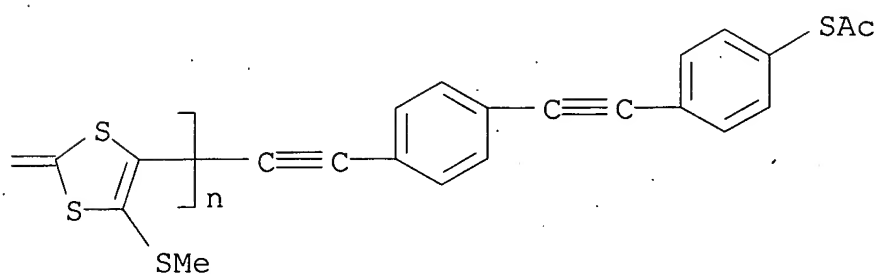
PAGE 1-A



PAGE 1-B

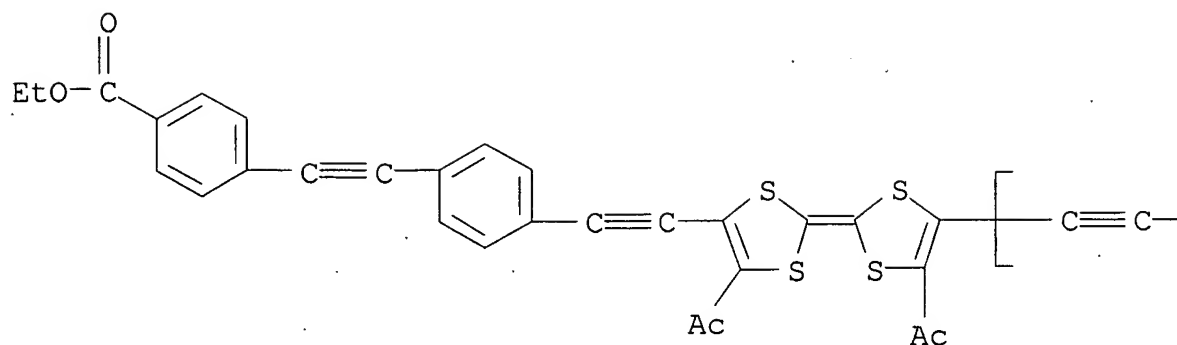


PAGE 1-C

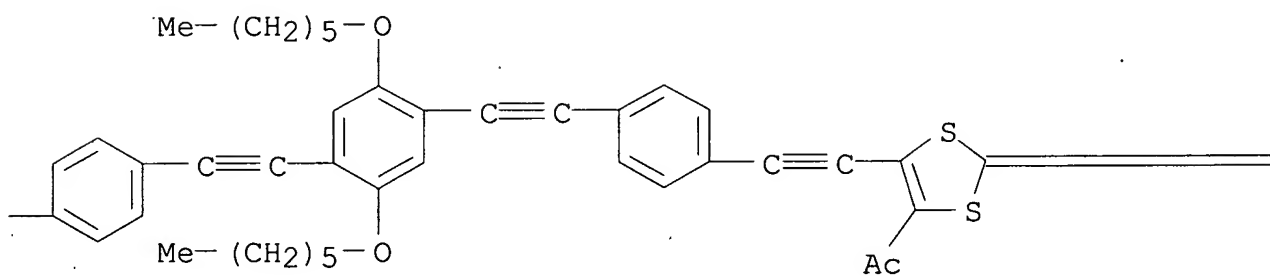


RN 889877-66-1 HCA
 CN Poly[(4-acetyl-1,3-dithiol-4-yl-2-ylidene) (4-acetyl-1,3-dithiol-4-yl-2-ylidene)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl], α -[[4-[[4-(ethoxycarbonyl)phenyl]ethynyl]phenyl]ethynyl]- ω -[5-acetyl-2-[5-acetyl-4-[[4-[[4-(ethoxycarbonyl)phenyl]ethynyl]phenyl]ethynyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]- (9CI) (CA INDEX NAME)

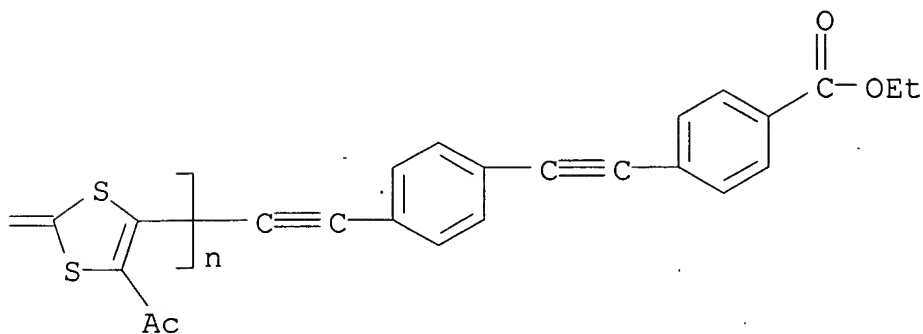
PAGE 1-A



PAGE 1-B



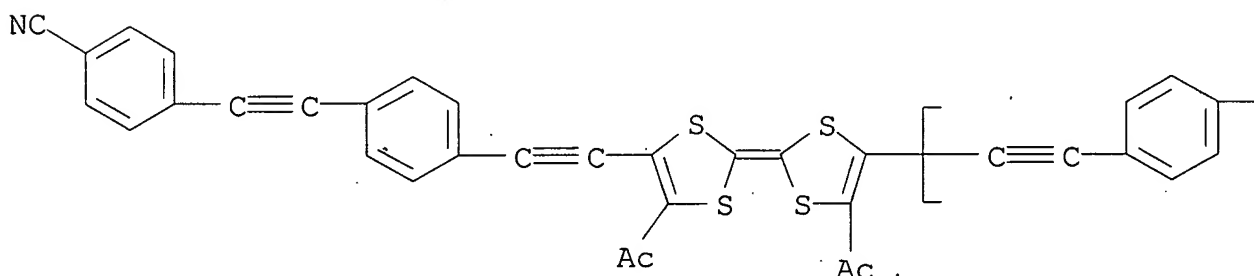
PAGE 1-C



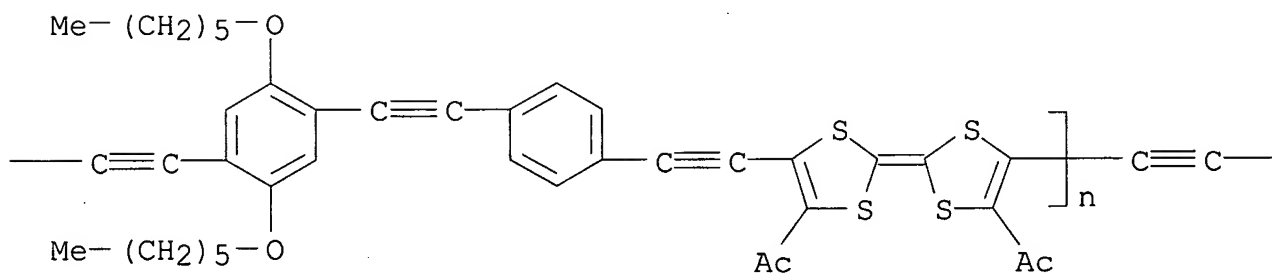
RN 889877-67-2 HCA
 CN Poly[(4-acetyl-1,3-dithiol-4-yl-2-ylidene) (4-acetyl-1,3-dithiol-4-yl-

2-ylidene)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl], α -[[4-[(4-cyanophenyl)ethynyl]phenyl]ethynyl]- ω -[5-acetyl-2-[5-acetyl-4-[[4-[(4-cyanophenyl)ethynyl]phenyl]ethynyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]- (9CI) (CA INDEX NAME)

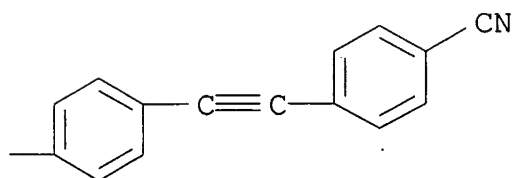
PAGE 1-A



PAGE 1-B



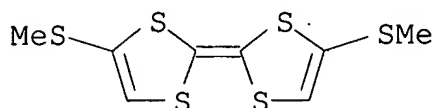
PAGE 1-C



IT 150856-39-6

(synthesis and characterization of mol. wires with
tetrathiafulvalene as redox center)

RN 150856-39-6 HCA
 CN 1,3-Dithiole, 4-(methylthio)-2-[4-(methylthio)-1,3-dithiol-2-ylidene]- (9CI) (CA INDEX NAME)

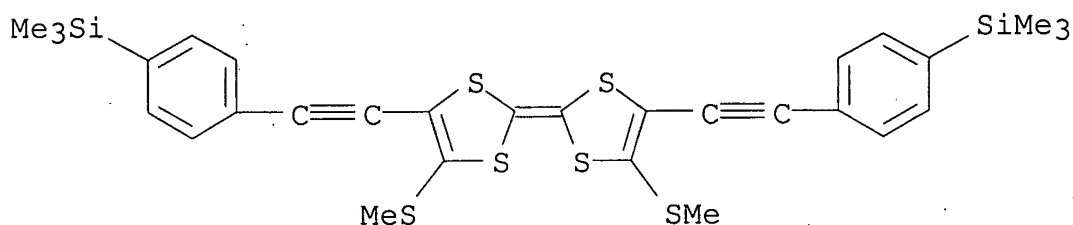


IT **889877-60-5P**

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

RN 889877-60-5 HCA

CN Silane, trimethyl[4-[[5-(methylthio)-2-[4-(methylthio)-5-[[4-(trimethylsilyl)phenyl]ethynyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]ethynyl]phenyl]- (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 76

ST tetrathiafulvalene **polyacetylene** redox mol wire synthesis

IT **Polyacetylenes**, preparation

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT **889877-62-7P 889877-63-8P**

(model compd.; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT **889877-61-6P**

(monomer; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT 889877-64-9DP, acetylthiophenyl-, etoxycarbonylphenyl- or cyanophenyl- endcapped **889877-65-0P 889877-66-1P**

889877-67-2P

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT 624-73-7, 1,2-Diiodoethane 66228-76-0 **150856-39-6**

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT 889877-59-2P **889877-60-5P**

(synthesis and characterization of mol. wires with

tetrathiafulvalene as redox center)

L66 ANSWER 3 OF 6 HCA COPYRIGHT 2007 ACS on STN

143:51861 Thin film transistor. Takenobu, Hiroshi; Iwasa, Yoshihiro (Japan Science and Technology Agency, Japan). Jpn. Kokai Tokkyo Koho JP 2005150410 A2 20050609, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-386114 20031117.

AB A stable thin film transistor having a high mobility comprises a gate **electrode**, a gate insulator film on the gate **electrode**, source and drain **electrodes** on the gate insulator film, and a semiconductor film of C nanotubes and their combination with other material between the source and drain **electrodes**. Specifically, the other material may comprise a fullerene, metal-contg. fullerene.

IT **25067-58-7, Polyacetylene 31366-25-3,**
TTF **55259-49-9, TMTSF**
(carbon nanotube thin film transistor)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

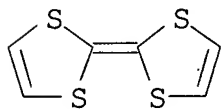
CRN 74-86-2

CMF C2 H2

HC≡CH

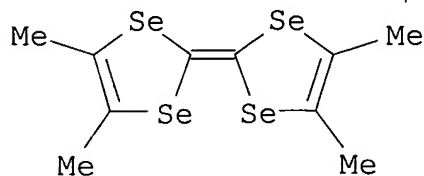
RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RN 55259-49-9 HCA

CN 1,3-Diselenole, 2-(4,5-dimethyl-1,3-diselenol-2-ylidene)-4,5-dimethyl- (9CI) (CA INDEX NAME)



IC ICM H01L029-786

ICS H01L029-06; H01L051-00
 CC 76-3 (Electric Phenomena)
 IT Fullerenes
 Fullerides

Polyacetylenes, uses

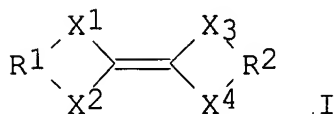
(carbon nanotube thin film transistor)

IT 110-02-1D, Thiophene, 3-alkyl, homopolymers 128-65-4 135-48-8,
 Pentacene 574-93-6, Phthalocyanine 1081-34-1,
 2,2':5',2''-Terthiophene 1518-16-7, TCNQ 9002-86-2, Polyvinyl
 chloride 9002-88-4, Polyethylene 9002-98-6, PEI 9003-53-6,
 Polystyrene 14916-87-1 **25067-58-7, Polyacetylene**
 25233-34-5, Poly-thiophene 29261-33-4 **31366-25-3**, TTF
55259-49-9, TMTSF 66280-99-7, Polythienylenevinylene
 78151-58-3 88493-55-4, α -Sexithiophene 97606-53-6
 99685-96-8, [5,6]Fullerene-C60-Ih 104934-50-1 105314-21-4
 115383-22-7, [5,6]Fullerene-C70-D5h(6) 132814-92-7,
 α - ω -Dihexyl-quaterthiophene 135113-15-4, Fullerene-C76
 135113-16-5, Fullerene-C84 136316-32-0, Fullerene-C78
 136846-59-8, Fullerene-C82 136846-62-3, Fullerene-C96
 137433-42-2 146341-33-5 151271-43-1, α - ω -Dihexyl-
 sexithiophene 156669-23-7, α - ω -Dihexylquinquethiophene
 268724-96-5 527680-51-9

(carbon nanotube thin film transistor)

L66 ANSWER 4 OF 6 HCA COPYRIGHT 2007 ACS on STN
 140:238479 Electrochemical device. Inatomi, Yuu; Shimada, Mikinari;
 Hojo, Nobuhiko (Matsushita Electric Industrial Co., Ltd., Japan).
 U.S. Pat. Appl. Publ. US 2004045818 A1 20040311, 16 pp. (English).
 CODEN: USXXCO. APPLICATION: US 2003-648271 20030827. PRIORITY: JP
 2002-250416 20020829.

GI



AB The invention concerns an electrochem. device for providing elec.
 energy by converting an electron transfer involved in an
 oxidn.-redn. reaction into elec. energy comprising a pos. electrode,
 a neg. electrode and an electrolyte, wherein at least one of the
 pos. and neg. electrodes comprises a compd. having a structure
 represented by the general formula (I), where R1 and R2 are
 independent of each other and each represents a linear or cyclic
 aliph. group; X1, X2, X3, and X4 are independent of each other and

each represents a S atom, an O atom, a Se atom, or a Te atom; and the aliph. group can comprise ≥ 1 selected from the group consisting of an O atom, a N atom, a S atom, a Si atom, a P atom, and a B atom.

IT **25067-58-7D, Polyacetylene, tetrathiafulvalene**
functionalized **35079-58-4 57512-85-3**
66946-48-3 128346-62-3
(electrochem. device)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

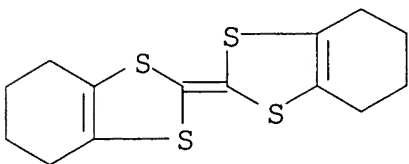
CRN 74-86-2

CMF C2 H2

$\text{HC}\equiv\text{CH}$

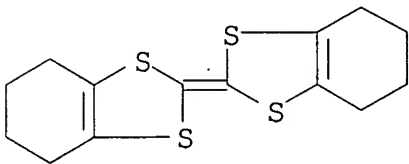
RN 35079-58-4 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)- (9CI) (CA INDEX NAME)



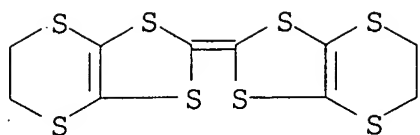
RN 57512-85-3 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)-, radical ion(1+) (9CI) (CA INDEX NAME)

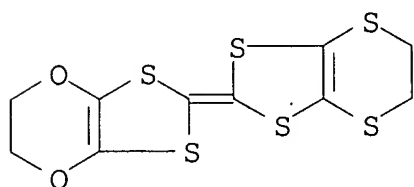


RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



RN 128346-62-3 HCA
 CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



IC ICM C25B011-04
 INCL 204291000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72
 IT **Polyacetylenes**, uses
 (tetrathiafulvalene functionalized; electrochem. device)
 IT 7439-93-2, Lithium, uses **25067-58-7D**,
Polyacetylene, tetrathiafulvalene functionalized
 31366-25-3, Tetrathiafulvalene **35079-58-4** 39302-37-9,
 Lithium titanium oxide 50708-37-7, Tetramethyl tetrathiafulvalene
57512-85-3 62921-51-1D, reaction products with
polyacetylene 66946-48-3 99159-48-5
 118148-32-6 **128346-62-3** 157289-25-3 157289-26-4
 174421-80-8, Cobalt lithium nitride $\text{Co}_{0.4}\text{Li}_{2.6}\text{N}$ 214604-40-7
 668421-55-4 668421-56-5 668421-57-6, Lithium titanium oxide
 ($\text{LiTi}_5\text{O}_{12}$) 668421-58-7 668421-59-8
 (electrochem. device)

L66 ANSWER 5 OF 6 HCA COPYRIGHT 2007 ACS on STN
 126:199916 Synthesis and characterization of polymer with
 bis(ethylenedithio)tetrathiafulvalene side group. Qin, Wei; Zhu,
 Daoben (Institute Chemistry, Academy Sciences, Beijing, 100080,
 Peop. Rep. China). Gaofenzi Xuebao (1), 121-124 (Chinese) 1997.
 CODEN: GAXUE9. ISSN: 1000-3304. Publisher: Kexue.
 AB 6-Methylol-1,3-dithiolo[4,5-b][1,4]dithiin-2-thione was treated with
 propargyl bromide followed by reaction with thieno[3,4-d]-1,3-
 dithiol-2-one to give **polyacetylene** contg.
 bis(ethylenedithio)tetrathiafulvalene side group. The polymer doped
 with iodine vapor and iodine soln. had elec. cond. $1.95 + 10^{-5}$

scm-1 and 7.3 + 10-9 scm-1 resp.

IT **187740-67-6P**

(prepn. and elec. cond. of iodine-doped **polyacetylene**
contg. bis(ethylenedithio)tetrathiafulvalene side group)

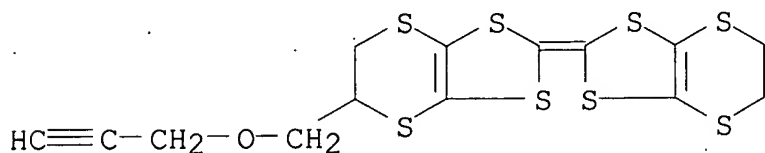
RN 187740-67-6 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-5-[(2-propynyloxy)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 187740-66-5

CMF C14 H12 O S8

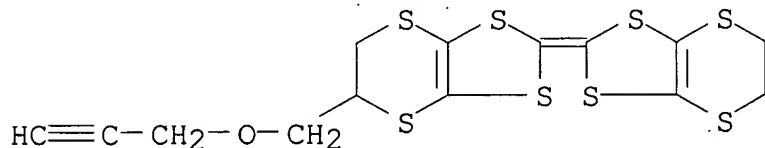


IT **187740-66-5P**

(prepn. and polymn. of)

RN 187740-66-5 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-5-[(2-propynyloxy)methyl]- (9CI) (CA INDEX NAME)



CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 76

ST **polyacetylene** contg bisethylenedithiotetrathiafulvalene side group; elec cond **polyacetylene** contg bisethylenedithiotetrathiafulvalene; iodine doped **polyacetylene** contg bisethylenedithiotetrathiafulvalene cond

IT Electric conductivity

Polyacetylenes, preparation
Semiconductor materials

(prepn. and elec. cond. of iodine-doped **polyacetylene**
contg. bis(ethylenedithio)tetrathiafulvalene side group)

IT 7553-56-2, Iodine, uses

(prepn. and elec. cond. of iodine-doped **polyacetylene**

contg. bis(ethylenedithio)tetrathiafulvalene side group)
IT **187740-67-6P**

(prepn. and elec. cond. of iodine-doped **polyacetylene**
contg. bis(ethylenedithio)tetrathiafulvalene side group)

IT **187740-66-5P**
(prepn. and polymn. of)

L66 ANSWER 6 OF 6 HCA COPYRIGHT 2007 ACS on STN

112:130820 Switching device. Eguchi, Takeshi; Kawada, Harunori; Sakai, Kunihiro; Matsuda, Hiroshi (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 01245577 A2 19890929 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-71762 19880328.

AB A stable switching device with an improved reproducibility comprises an org. insulator layer having a periodic layer structure between a pair of **electrodes** ≥ 1 of which comprises an org. conductor.

IT **25067-58-7, Polyacetylene 101853-37-6**
(elec. switches contg.).

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-86-2

CMF C2 H2

HC \equiv CH

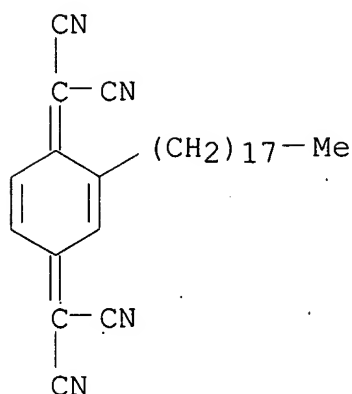
RN 101853-37-6 HCA

CN Propanedinitrile, 2,2'-(2-octadecyl-2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(4,5-dimethyl-1,3-dithiol-2-ylidene)-4,5-dimethyl-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 101853-36-5

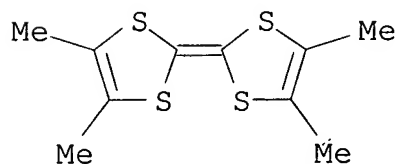
CMF C30 H40 N4



CM 2

CRN 50708-37-7

CMF C10 H12 S4



IC ICM H01L049-02

ICS H01L029-28

ICA C08G061-00; C08G073-00

CC 76-14 (Electric Phenomena)

ST switch.org insulator **electrode**

IT Electric switches and switching

(org. **electrode** and insulators for)

IT 110-00-9D, derivs., polymers 9033-83-4, Poly(phenylene)

12369-74-3, Lutetium diphthalocyanine 25014-15-7,

Poly(2-vinylpyridine) **25067-58-7, Polyacetylene**

25067-59-8 25067-97-4 25135-12-0, Poly(1-vinyl naphthalene)

25135-16-4, Polynaphthalene 25190-62-9, Poly p-phenylene

25212-74-2, Poly p-phenylene sulfide 25233-30-1, Polyaniline

25667-40-7, Poly p-phenylene oxide 26009-24-5, Poly p-phenylene

vinylene 26499-97-8, Poly m-phenylene 27880-39-3,

Poly(1,4-phenylenemethylene) 27987-87-7, Polydiacetylene

28406-56-6, Poly(2-vinylnaphthalene) 30604-81-0, Polypyrrole

34801-99-5, Poly(vinyl ferrocene) 51325-05-4, Polythienylene

52410-66-9, Poly(seleno-1,4-phenylene) 89231-09-4, Polyselenophene

91201-85-3 **101853-37-6** 101909-00-6 112261-44-6

(elec. switches contg.)

=>

=> D L67 1-11 CBIB ABS HITSTR HITIND

L67 ANSWER 1 OF 11 HCA COPYRIGHT 2007 ACS on STN

145:481703 Design and operation of a resistance switching memory cell with diode. Krieger, Juri H.; Spitzer, Stuart (Advanced Micro Devices, Inc., USA). U.S. Pat. Appl. Publ. US 2006245235 A1 20061102, 24pp. (English). CODEN: USXXCO. APPLICATION: US 2005-119973 20050502.

AB The invention relates generally to the design and operation of resistance switching memory cells, and in particular to a memory cell with a diode component. Systems and methodologies are provided for forming a diode component operative (e.g., connected in series) with active and passive layer of a resistance switching memory cell to facilitate programming arrays of memory cells created therefrom. Such a diode component can be part of a memory cell having a passive and active layer. Such an arrangement reduces a no. of transistor-type voltage controls and assocd. power consumption, while enabling individual memory cell programming as part of the array. Also, the system provides for an efficient placement of memory cells on a wafer surface, and increases an amt. of die space available for circuit design.

IT **25067-58-7, Polyacetylene 31366-25-3**

(device active layer; design and operation of a resistance switching memory cell with diode)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

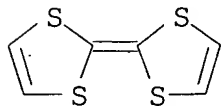
CRN 74-86-2

CMF C2 H2

HC≡CH

RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



INCL 365115000

CC 76-3 (Electric Phenomena)

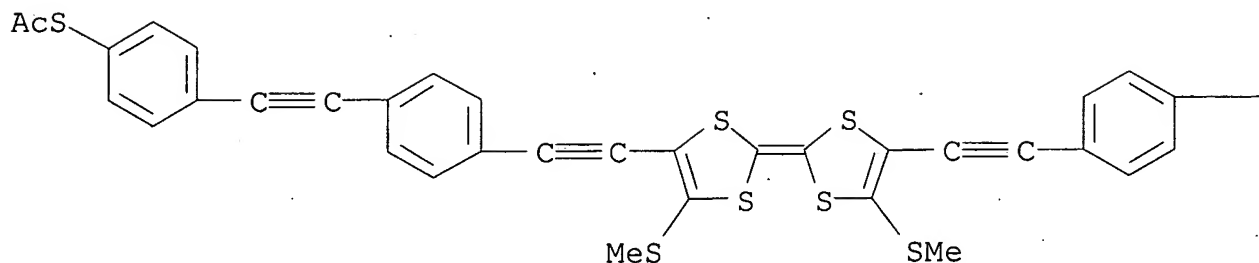
IT Metallocenes

Polyacetylenes, uses

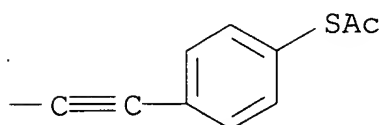
(design and operation of a resistance switching memory cell with

- diode)
- IT 86-28-2, N-Ethylcarbazole 193-44-2, Tetrathiotetracene 574-93-6, Phthalocyanine 670-54-2, Tetracyanoethylene, uses 1518-16-7, Tetracyanoquinodimethane 9003-53-6, Polystyrene 9033-83-4, Poly(phenylene) 10043-11-5, Boron nitride, uses 12162-21-9, Hafnium selenide (HfSe₂) 12299-51-3, Vanadium selenide (VSe₂) 12680-08-9, Lithium titanium sulfide 25013-01-8, Polypyridine 25038-69-1, Polyphenylacetylene 25067-54-3, Polyfuran **25067-58-7, Polyacetylene** 25989-14-4, Polydiphenylacetylene 26009-24-5, Poly(p-phenylene vinylene) 27290-25-1, Polyphthalocyanine 30604-81-0, Polypyrrole **31366-25-3** 82451-55-6, Polyindole 82451-56-7, Polyazulene 108167-10-8 117446-19-2, Hexadecafluorophthalocyanine 126213-51-2, Poly(ethylenedioxythiophene) (device active layer; design and operation of a resistance switching memory cell with diode)
- IT 7429-90-5, Aluminum, uses 7440-32-6, Titanium, uses (**electrode**; design and operation of a resistance switching memory cell with diode)
- L67 ANSWER 2 OF 11 HCA COPYRIGHT 2007 ACS on STN
- 145:46342 Synthesis and characterization of new type molecular wires with tetrathiafulvalene as redox center. Wang, Erjing; Li, Hongxiang; Hu, Wenping; Zhu, Daoben (Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Journal of Polymer Science, Part A: Polymer Chemistry, 44(8), 2707-2713 (English) 2006. CODEN: JPACEC. ISSN: 0887-624X. Publisher: John Wiley & Sons, Inc..
- AB A new type of mol. wire la-c with tetrathiafulvalene (TTF) units was synthesized and characterized. The UV-vis spectra and electrochem. results showed that comparing with PPE, these polymers had smaller HOMO-LUMO band gap, and the HOMO level of polymer la (-5.05 eV) was closer to the work function energy of Au **electrode**. Thermal stability analyses indicated that these polymers had good thermal stability. All of the results showed that the introduction of TTF units made polymers la-c better candidates for mol. wires than PPE.
- IT **889877-62-7P 889877-63-8P** (model compd.; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)
- RN 889877-62-7 HCA
- CN Ethanethioic acid, S-[4-[[4-[[2-[4-[[4-[[4-(acetylthio)phenyl]ethynyl]phenyl]ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]ethynyl]phenyl]ethynyl]phenyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A

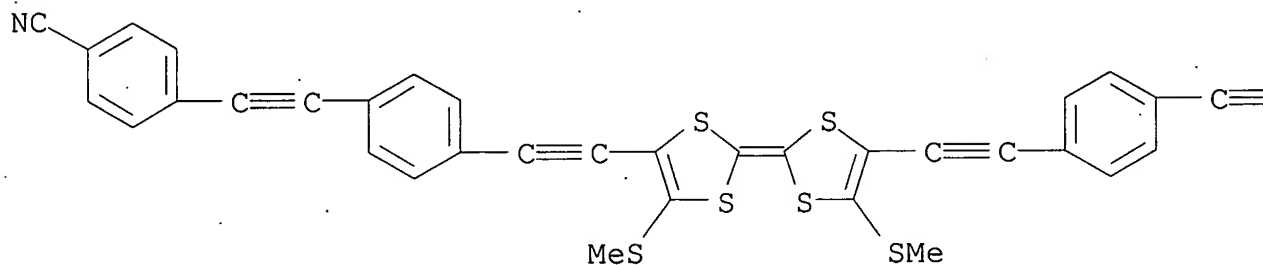


PAGE 1-B

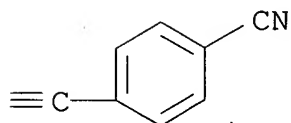


RN 889877-63-8 HCA
 CN Benzonitrile, 4-[[4-[[2-[4-[[4-[(4-cyanophenyl)ethynyl]phenyl]ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]ethynyl]phenyl]ethynyl]- (9CI) (CA INDEX NAME)

PAGE 1-A

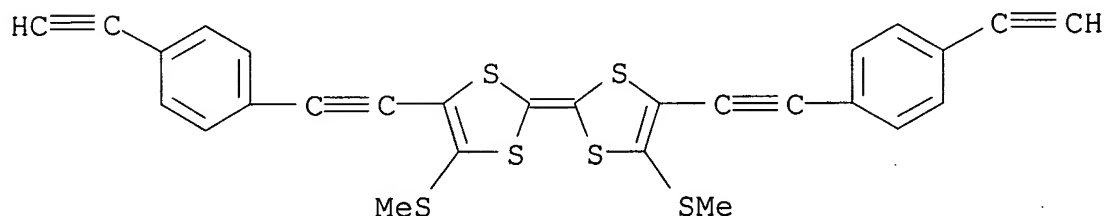


PAGE 1-B



IT **889877-61-6P**
 (monomer; synthesis and characterization of mol. wires with
 tetrathiafulvalene as redox center)
 RN 889877-61-6 HCA

CN 1,3-Dithiole, 4-[(4-ethynylphenyl)ethynyl]-2-[4-[(4-ethynylphenyl)ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)- (9CI) (CA INDEX NAME)



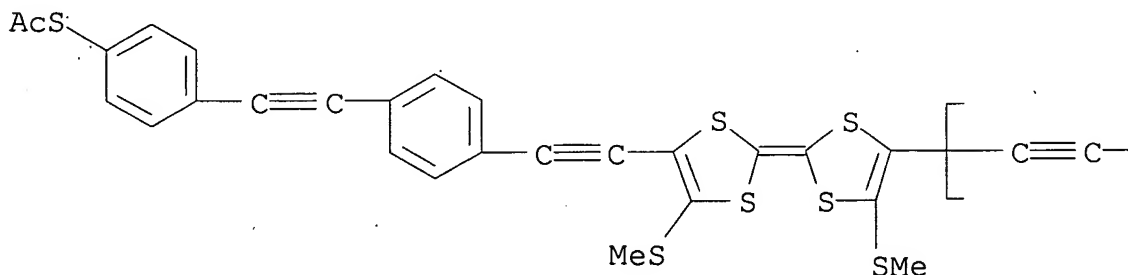
IT 889877-65-0P 889877-66-1P 889877-67-2P

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

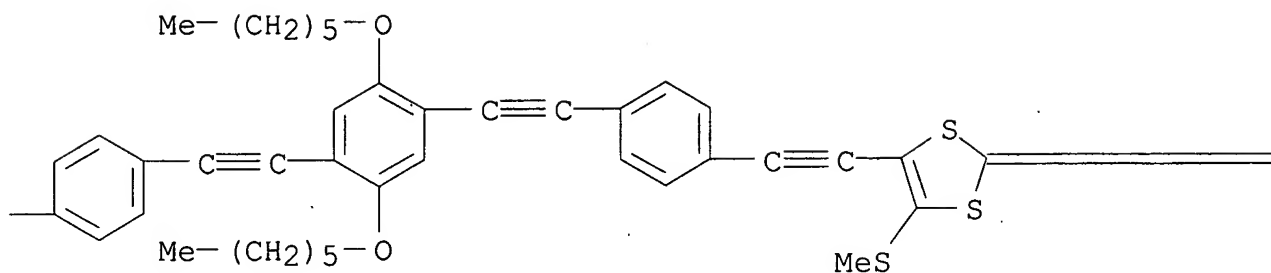
RN 889877-65-0 HCA

CN Poly[[4-(methylthio)-1,3-dithiol-4-yl-2-ylidene][4-(methylthio)-1,3-dithiol-4-yl-2-ylidene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl], α -[[4-[[4-(acetylthio)phenyl]ethynyl]phenyl]ethynyl]- ω -[2-[4-[[4-(acetylthio)phenyl]ethynyl]phenyl]ethynyl]-5-(methylthio)-1,3-dithiol-2-ylidene]-5-(methylthio)-1,3-dithiol-4-yl]- (9CI) (CA INDEX NAME)

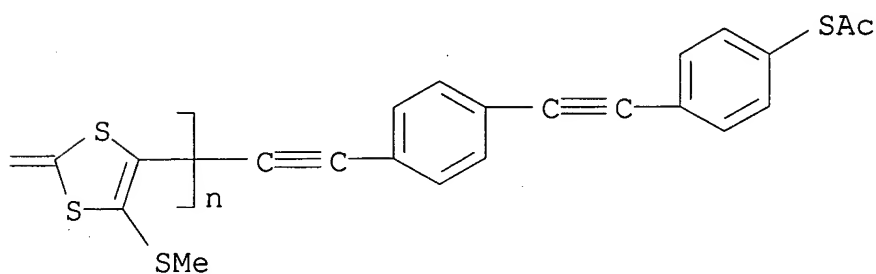
PAGE 1-A



PAGE 1-B

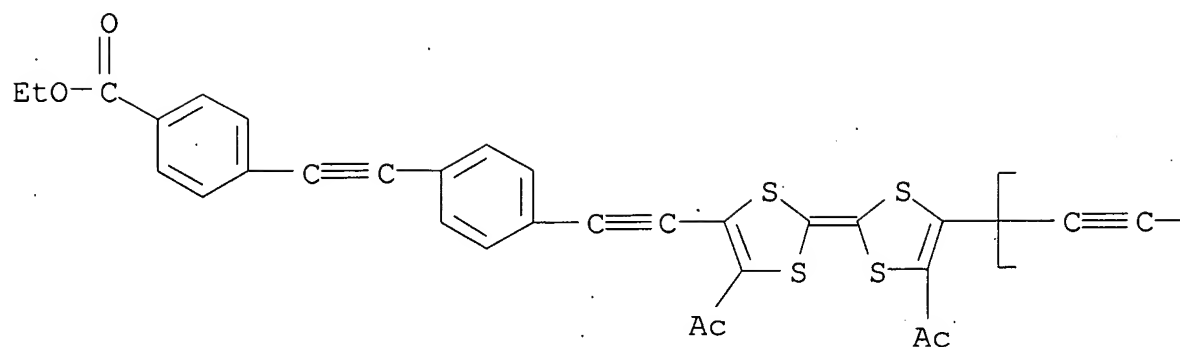


PAGE 1-C

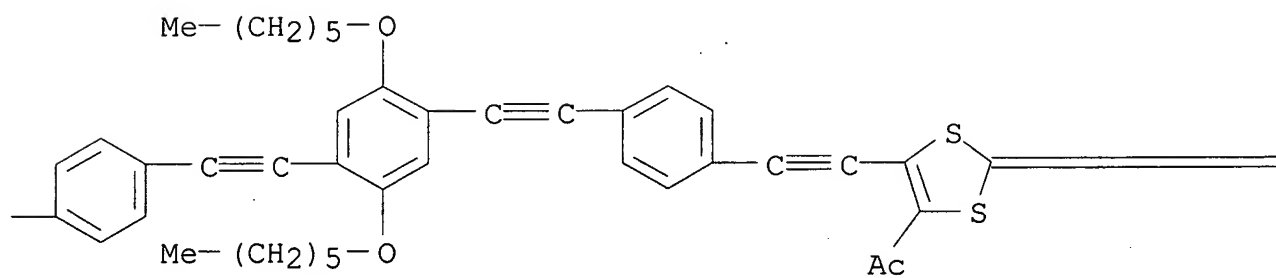


RN 889877-66-1 HCA
 CN Poly[(4-acetyl-1,3-dithiol-4-yl-2-ylidene) (4-acetyl-1,3-dithiol-4-yl-2-ylidene)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl], α-[[4-[[4-(ethoxycarbonyl)phenyl]ethynyl]phenyl]ethynyl]-ω-[5-acetyl-2-[5-acetyl-4-[[4-[[4-(ethoxycarbonyl)phenyl]ethynyl]phenyl]ethynyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]- (9CI) (CA INDEX NAME)

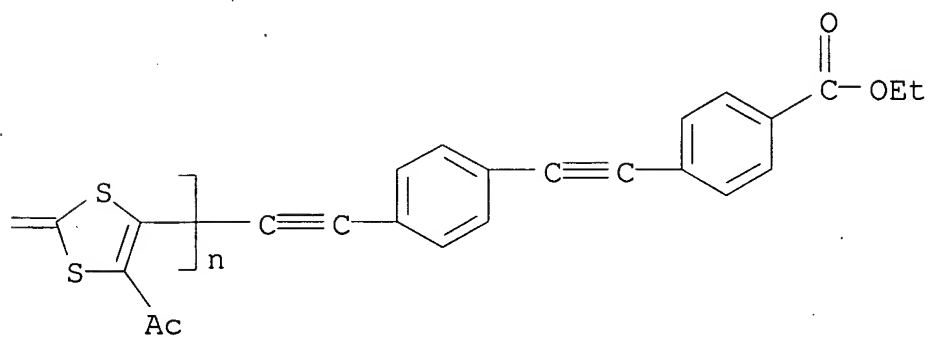
PAGE 1-A



PAGE 1-B



PAGE 1-C

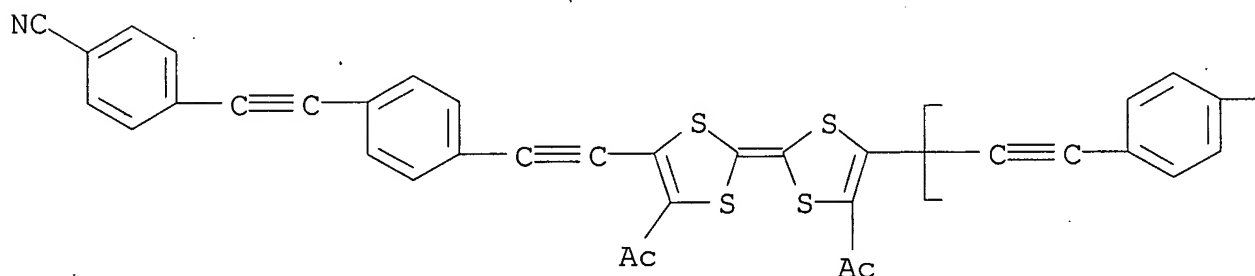


RN 889877-67-2 HCA

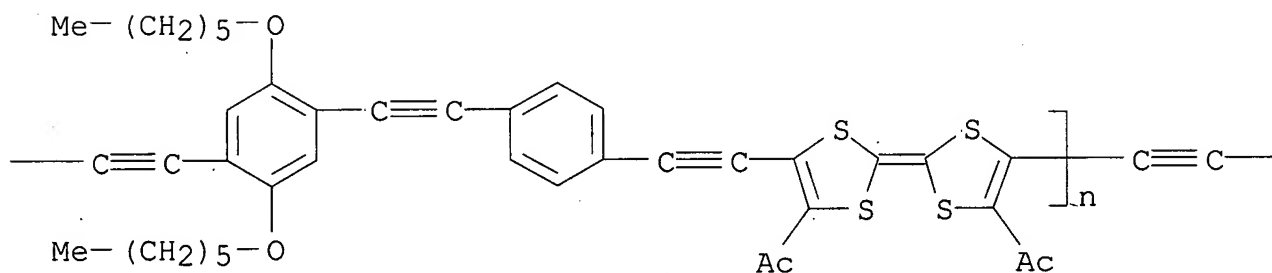
CN Poly[(4-acetyl-1,3-dithiol-4-yl-2-ylidene) (4-acetyl-1,3-dithiol-4-yl-

2-ylidene)-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethynediyl-1,4-phenylene-1,2-ethynediyl], α -[[4-[(4-cyanophenyl)ethynyl]phenyl]ethynyl]- ω -[5-acetyl-2-[5-acetyl-4-[[4-[(4-cyanophenyl)ethynyl]phenyl]ethynyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]- (9CI) (CA INDEX NAME)

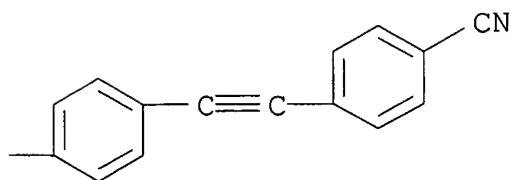
PAGE 1-A



PAGE 1-B



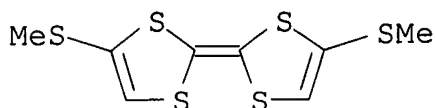
PAGE 1-C



IT 150856-39-6

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

RN 150856-39-6 HCA
 CN 1,3-Dithiole, 4-(methylthio)-2-[4-(methylthio)-1,3-dithiol-2-ylidene]- (9CI) (CA INDEX NAME)

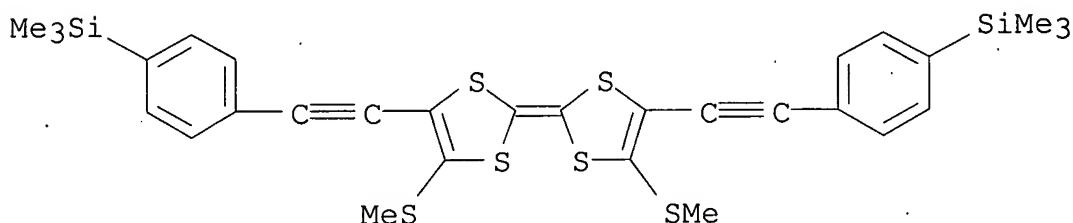


IT **889877-60-5P**

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

RN 889877-60-5 HCA

CN Silane, trimethyl[4-[[5-(methylthio)-2-[4-(methylthio)-5-[[4-(trimethylsilyl)phenyl]ethynyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]ethynyl]phenyl]- (9CI) (CA INDEX NAME)



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 76

ST tetrathiafulvalene **polyacetylene** redox mol wire synthesis

IT **Polyacetylenes**, preparation

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT **889877-62-7P 889877-63-8P**

(model compd.; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT **889877-61-6P**

(monomer; synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT 889877-64-9DP, acetylthiophenyl-, etoxycarbonylphenyl- or cyanophenyl- endcapped **889877-65-0P 889877-66-1P**

889877-67-2P

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT 624-73-7, 1,2-Diiodoethane 66228-76-0 **150856-39-6**

(synthesis and characterization of mol. wires with tetrathiafulvalene as redox center)

IT 889877-59-2P **889877-60-5P**

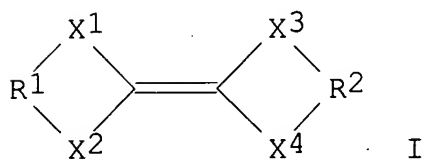
(synthesis and characterization of mol. wires with

tetrathiafulvalene as redox center)

L67 ANSWER 3 OF 11 HCA COPYRIGHT 2007 ACS on STN

143:349949 Power system and its manage method. Kuranuki, Masaaki; Inatomi, Yuu (Matsushita Electric Industrial Co., Ltd., Japan). PCT Int. Appl. WO 2005091424 A1 20050929, 32 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2005-JP4442 20050314. PRIORITY: JP 2004-78891 20040318.

GI

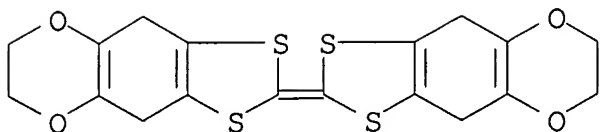


AB The power system has an electrochem. element, a load, a power generating means, and a charge/discharge control means for the electrochem. element; where the electrochem. element is a secondary battery having a cathode, an anode, and an electrolyte soln. or a solid electrolyte and has ≥ 1 voltage step on its charge/discharge curve. A threshold voltage is set near the inflection point on 1 of the steps, and the control means controls the charge and discharge of the battery to bring the battery voltage to the threshold voltage. Preferably, the cathode or the anode is I, where R1 and R2 = linear or cyclic aliph. groups which may contain O, N, S, Si, P, or B atoms, and X1-4 = S, O, to Te; and the power system is for automobiles.

IT **668421-55-4**
(electrodes for secondary batteries in power systems contg. charge/discharge means for automobiles)

RN 668421-55-4 HCA

CN 1,3-Dithiolo[4,5-g][1,4]benzodioxin, 4,6,7,9-tetrahydro-2-(4,6,7,9-tetrahydro-1,3-dithiolo[4,5-g][1,4]benzodioxin-2-ylidene)- (9CI)
(CA INDEX NAME)



IC ICM H01M010-44
 ICS G01R031-36; H01M004-60; H02J007-34
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 IT **668421-55-4**
 (electrodes for secondary batteries in power systems contg.
 charge/discharge means for automobiles)

L67 ANSWER 4 OF 11 HCA COPYRIGHT 2007 ACS on STN
 143:51861 Thin film transistor. Takenobu, Hiroshi; Iwasa, Yoshihiro
 (Japan Science and Technology Agency, Japan). Jpn. Kokai Tokkyo
 Koho JP 2005150410 A2 20050609, 10 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2003-386114 20031117.

AB A stable thin film transistor having a high mobility comprises a
 gate **electrode**, a gate insulator film on the gate
electrode, source and drain **electrodes** on the gate
 insulator film, and a semiconductor film of C nanotubes and their
 combination with other material between the source and drain
electrodes. Specifically, the other material may comprise a
 fullerene, metal-contg. fullerene.

IT **25067-58-7, Polyacetylene 31366-25-3,**
 TTF **55259-49-9**, TMTSF
 (carbon nanotube thin film transistor)

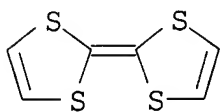
RN 25067-58-7 HCA
 CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

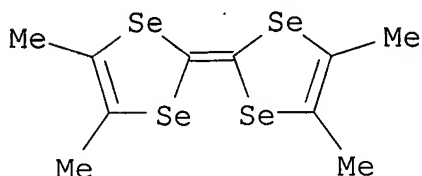
CRN 74-86-2
 CMF C2 H2

HC≡CH

RN 31366-25-3 HCA
 CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



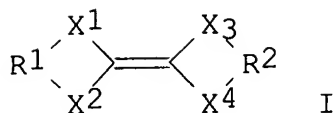
RN 55259-49-9 HCA
 CN 1,3-Diselenole, 2-(4,5-dimethyl-1,3-diselenol-2-ylidene)-4,5-dimethyl- (9CI) (CA INDEX NAME)



IC ICM H01L029-786
 ICS H01L029-06; H01L051-00
 CC 76-3 (Electric Phenomena)
 IT Fullerenes
 Fullerides
Polyacetylenes, uses
 (carbon nanotube thin film transistor)
 IT 110-02-1D, Thiophene, 3-alkyl, homopolymers 128-65-4 135-48-8,
 Pentacene 574-93-6, Phthalocyanine 1081-34-1,
 2,2':5',2''-Terthiophene 1518-16-7, TCNQ 9002-86-2, Polyvinyl
 chloride 9002-88-4, Polyethylene 9002-98-6, PEI 9003-53-6,
 Polystyrene 14916-87-1 **25067-58-7, Polyacetylene**
 25233-34-5, Poly-thiophene 29261-33-4 **31366-25-3, TTF**
55259-49-9, TMTSF 66280-99-7, Polythienylenevinylene
 78151-58-3 88493-55-4, α -Sexithiophene 97606-53-6
 99685-96-8, [5,6]Fullerene-C60-Ih 104934-50-1 105314-21-4
 115383-22-7, [5,6]Fullerene-C70-D5h(6) 132814-92-7,
 α - ω -Dihexyl-quaterthiophene 135113-15-4, Fullerene-C76
 135113-16-5, Fullerene-C84 136316-32-0, Fullerene-C78
 136846-59-8, Fullerene-C82 136846-62-3, Fullerene-C96
 137433-42-2 146341-33-5 151271-43-1, α - ω -Dihexyl-
 sexithiophene 156669-23-7, α - ω -Dihexylquinquethiophene
 268724-96-5 527680-51-9
 (carbon nanotube thin film transistor)

L67 ANSWER 5 OF 11 HCA COPYRIGHT 2007 ACS on STN
 140:238479 Electrochemical device. Inatomi, Yuu; Shimada, Mikinari;
 Hojo, Nobuhiko (Matsushita Electric Industrial Co., Ltd., Japan).
 U.S. Pat. Appl. Publ. US 2004045818 A1 20040311, 16 pp. (English).
 CODEN: USXXCO. APPLICATION: US 2003-648271 20030827. PRIORITY: JP
 2002-250416 20020829.

GI



AB The invention concerns an electrochem. device for providing elec. energy by converting an electron transfer involved in an oxidn.-redn. reaction into elec. energy comprising a pos. **electrode**, a neg. **electrode** and an electrolyte, wherein at least one of the pos. and neg. **electrodes** comprises a compd. having a structure represented by the general formula (I), where R1 and R2 are independent of each other and each represents a linear or cyclic aliph. group; X1, X2, X3, and X4 are independent of each other and each represents a S atom, an O atom, a Se atom, or a Te atom; and the aliph. group can comprise ≥ 1 selected from the group consisting of an O atom, a N atom, a S atom, a Si atom, a P atom, and a B atom.

IT **25067-58-7D, Polyacetylene**, tetrathiafulvalene functionalized **31366-25-3**, Tetrathiafulvalene **35079-58-4** **50708-37-7**, Tetramethyl tetrathiafulvalene **57512-85-3** **62921-51-1D**, reaction products with **polyacetylene** **66946-48-3** **99159-48-5** **118148-32-6** **128346-62-3** **157289-25-3** **157289-26-4** **214604-40-7** **668421-55-4** **668421-56-5** **668421-58-7** **668421-59-8**

(electrochem. device)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

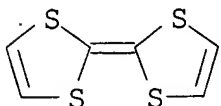
CRN 74-86-2

CMF C2 H2

HC \equiv CH

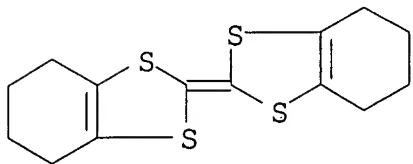
RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



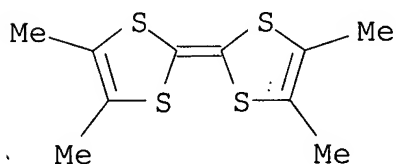
RN 35079-58-4 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)- (9CI) (CA INDEX NAME)



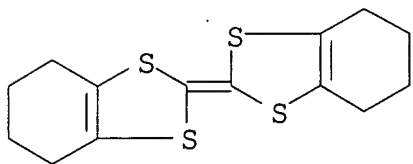
RN 50708-37-7 HCA

CN 1,3-Dithiole, 2-(4,5-dimethyl-1,3-dithiol-2-ylidene)-4,5-dimethyl- (9CI) (CA INDEX NAME)



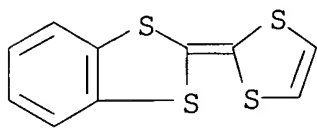
RN 57512-85-3 HCA

CN 1,3-Benzodithiole, 4,5,6,7-tetrahydro-2-(4,5,6,7-tetrahydro-1,3-benzodithiol-2-ylidene)-, radical ion(1+) (9CI) (CA INDEX NAME)



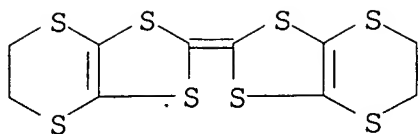
RN 62921-51-1 HCA

CN 1,3-Benzodithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



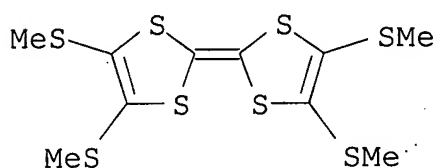
RN 66946-48-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)



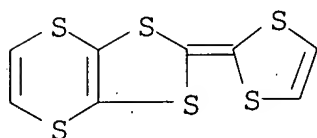
RN 99159-48-5 HCA

CN 1,3-Dithiolo, 2-[4,5-bis(methylthio)-1,3-dithiol-2-ylidene]-4,5-bis(methylthio)-, radical ion(1+) (9CI) (CA INDEX NAME)



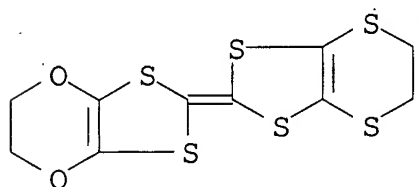
RN 118148-32-6 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



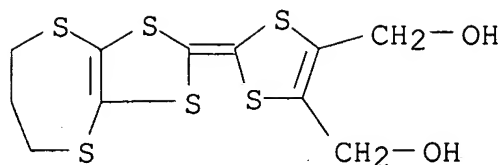
RN 128346-62-3 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro- (9CI) (CA INDEX NAME)

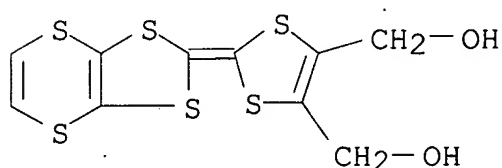


RN 157289-25-3 HCA

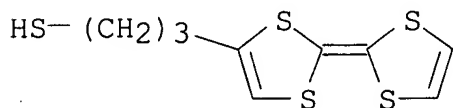
CN 1,3-Dithiolo-4,5-dimethanol, 2-(6,7-dihydro-5H-1,3-dithiolo[4,5-b][1,4]dithiepin-2-ylidene)- (9CI) (CA INDEX NAME)



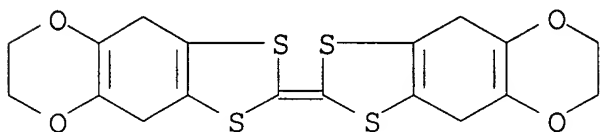
RN 157289-26-4 HCA
 CN 1,3-Dithiolo-4,5-dimethanol, 2-(1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)- (9CI) (CA INDEX NAME)



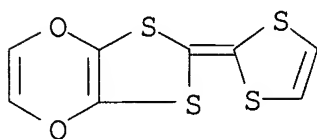
RN 214604-40-7 HCA
 CN 1,3-Dithiolo-4-propanethiol, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



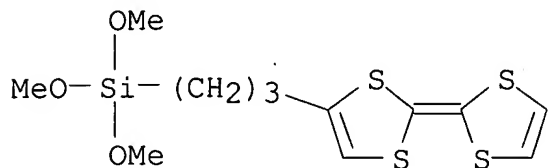
RN 668421-55-4 HCA
 CN 1,3-Dithiolo[4,5-g][1,4]benzodioxin, 4,6,7,9-tetrahydro-2-(4,6,7,9-tetrahydro-1,3-dithiolo[4,5-g][1,4]benzodioxin-2-ylidene)- (9CI) (CA INDEX NAME)



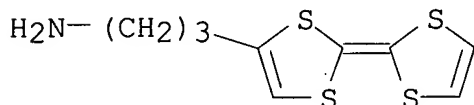
RN 668421-56-5 HCA
 CN 1,3-Dithiolo[4,5-b][1,4]dioxin, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RN 668421-58-7 HCA
 CN Silane, [3-[2-(1,3-dithiol-2-ylidene)-1,3-dithiol-4-yl]propyl]trimethoxy- (9CI) (CA INDEX NAME)



RN 668421-59-8 HCA
 CN 1,3-Dithiole-4-propanamine, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



IC ICM C25B011-04
 INCL 204291000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72
 ST **battery cathode anode**
 IT **Battery anodes**
 (electrochem. device)
 IT Secondary **batteries**
 (lithium; electrochem. device)
 IT **Polyacetylenes**, uses
 (tetrathiafulvalene functionalized; electrochem. device)
 IT 7439-93-2, Lithium, uses **25067-58-7D**,
Polyacetylene, tetrathiafulvalene functionalized
31366-25-3, Tetrathiafulvalene **35079-58-4**
 39302-37-9, Lithium titanium oxide **50708-37-7**, Tetramethyl
 tetrathiafulvalene **57512-85-3** **62921-51-1D**,
 reaction products with **polyacetylene 66946-48-3**
99159-48-5 **118148-32-6** **128346-62-3**
157289-25-3 **157289-26-4** 174421-80-8, Cobalt
 lithium nitride Co_{0.4}Li_{2.6}N **214604-40-7**
668421-55-4 **668421-56-5** 668421-57-6, Lithium
 titanium oxide (LiTi₅O₁₂) **668421-58-7** **668421-59-8**
 (electrochem. device)

L67 ANSWER 6 OF 11 HCA COPYRIGHT 2007 ACS on STN
 132:223086 2-mm Waveband electron paramagnetic resonance spectroscopy of
 conducting polymers. Krinichnyi, V. I. (Institute of Problems of

Chemical Physics, Russian Academy of Sciences, Chernogolovka, MR 142432, Russia). Synthetic Metals, 108(3), 173-222 (English) 2000. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

AB A review, with .apprx.221 refs., on studies of conducting polymers using high-resoln. 2-mm waveband ESR (EPR) spectroscopy in combination with spin label and probe, steady-state satn. of spin-packets and satn. transfer methods. Theor. principles of magnetic parameters, satn., relaxation, and dynamics of nonlinear charge carriers in conducting polymers are described. Data obtained in 2-mm waveband EPR studies of nature, relaxation, and dynamics of paramagnetic centers delocalized on nonlinear charge carriers and the mechanisms of charge transfer in **polyacetylene**, polythiophene, poly(p-phenylene), polypyrrole, poly(bis-alkylthioacetylene), polyaniline, and poly(tetrathiafulvalene) with different doping levels are presented.

IT **25067-58-7, Polyacetylene 56388-66-0,**
Poly(tetrathiafulvalene)
(magnetic parameters of nonlinear charge carriers and charge transfer in conducting polymers studied by ESR spectroscopy)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-86-2

CMF C2 H2

HC≡CH

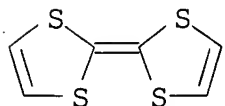
RN 56388-66-0 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 31366-25-3

CMF C6 H4 S4

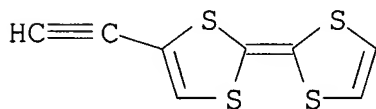


CC 36-0 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 65, 76

ST review conducting polymer ESR spectroscopy; polypyrrole polyaniline polythiophene EPR spin relaxation review; **polyacetylene**

- polyphenylene paramagnetic center relaxation EPR review
- IT **Polyacetylenes**, properties
 Polyanilines
 Polyphenyls
 (magnetic parameters of nonlinear charge carriers and charge transfer in conducting polymers studied by ESR spectroscopy)
- IT **25067-58-7, Polyacetylene** 25190-62-9,
 Poly(p-phenylene) 25233-30-1, Polyaniline 25233-34-5,
 Polythiophene 30604-81-0, Polypyrrole **56388-66-0**,
 Poly(tetrathiafulvalene)
 (magnetic parameters of nonlinear charge carriers and charge transfer in conducting polymers studied by ESR spectroscopy)
- L67 ANSWER 7 OF 11 HCA COPYRIGHT 2007 ACS on STN
- 131:19361 Preparation of a new poly(arylacetylene) with a tetrathiafulvalene (TTF) unit in the side chain. Shimizu, Takahisa; Yamamoto, Takakazu (Research Laboratory of Resources Utilization, Tokyo Institute of Technology, Tokyo, 226-8503, Japan). Chemical Communications (Cambridge) (6), 515-516 (English) 1999. CODEN: CHCOFS. ISSN: 1359-7345. Publisher: Royal Society of Chemistry.
- AB A new poly(arylacetylene) having a strongly electron-donating (tetrathiafulvalene) unit in the side chain has been prepd. by Rh-catalyzed polymn. of 2-ethynyltetrathiafulvalene. Optical, electrochem., and elec. properties of the polymer have been discussed.
- IT **226703-45-3P**
 (prepn. in presence of rhodium catalysts)
- RN 226703-45-3 HCA
- CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)-4-ethynyl-, homopolymer (9CI) (CA INDEX NAME)
- CM 1
- CRN 161521-28-4
- CMF C8 H4 S4



- CC 35-4 (Chemistry of Synthetic High Polymers)
- ST ethynyltetrathiafulvalene polymn rhodium catalyst;
polyacetylene tetrathiafulvalene group contg prepn
- IT **Polyacetylenes**, preparation
 (tetrathiafulvalene-substituted; prepn. in presence of rhodium catalysts)
- IT **226703-45-3P**

(prepn. in presence of rhodium catalysts)

L67 ANSWER 8 OF 11 HCA COPYRIGHT 2007 ACS on STN

126:199916 Synthesis and characterization of polymer with bis(ethylenedithio)tetrathiafulvalene side group. Qin, Wei; Zhu, Daoben (Institute Chemistry, Academy Sciences, Beijing, 100080, Peop. Rep. China). Gaofenzi Xuebao (1), 121-124 (Chinese) 1997. CODEN: GAXUE9. ISSN: 1000-3304. Publisher: Kexue.

AB 6-Methylol-1,3-dithiolo[4,5-b][1,4]dithiin-2-thione was treated with propargyl bromide followed by reaction with thieno[3,4-d]-1,3-dithiol-2-one to give **polyacetylene** contg. bis(ethylenedithio)tetrathiafulvalene side group. The polymer doped with iodine vapor and iodine soln. had elec. cond. 1.95×10^{-5} scm⁻¹ and 7.3×10^{-9} scm⁻¹ resp.

IT **187740-67-6P**
(prepn. and elec. cond. of iodine-doped **polyacetylene** contg. bis(ethylenedithio)tetrathiafulvalene side group)

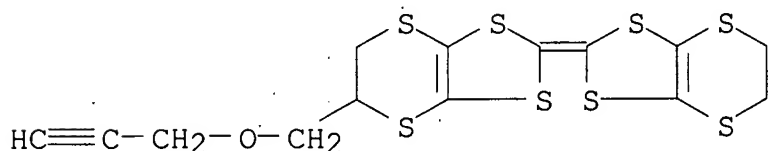
RN 187740-67-6 HCA

CN 1,3-Dithiolo[4,5-b][1,4]dithiin, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-5,6-dihydro-5-[(2-propynyloxy)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 187740-66-5

CMF C14 H12 O S8



CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 76

ST **polyacetylene** contg bisethylenedithiotetrathiafulvalene side group; elec cond **polyacetylene** contg bisethylenedithiotetrathiafulvalene; iodine doped **polyacetylene** contg bisethylenedithiotetrathiafulvalene cond

IT Electric conductivity
Polyacetylenes, preparation
Semiconductor materials

(prepn. and elec. cond. of iodine-doped **polyacetylene** contg. bis(ethylenedithio)tetrathiafulvalene side group)

IT 7553-56-2, Iodine, uses
(prepn. and elec. cond. of iodine-doped **polyacetylene** contg. bis(ethylenedithio)tetrathiafulvalene side group)

IT 187740-67-6P

(prepn. and elec. cond. of iodine-doped **polyacetylene**
contg. bis(ethylenedithio)tetrathiafulvalene side group)

L67 ANSWER 9 OF 11 HCA COPYRIGHT 2007 ACS on STN

112:130820 Switching device. Eguchi, Takeshi; Kawada, Harunori; Sakai, Kunihiro; Matsuda, Hiroshi (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 01245577 A2 19890929 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-71762 19880328.

AB A stable switching device with an improved reproducibility comprises an org. insulator layer having a periodic layer structure between a pair of **electrodes** ≥ 1 of which comprises an org. conductor.

IT 25067-58-7, **Polyacetylene** 101853-37-6

(elec. switches contg.)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-86-2

CMF C2 H2

HC \equiv CH

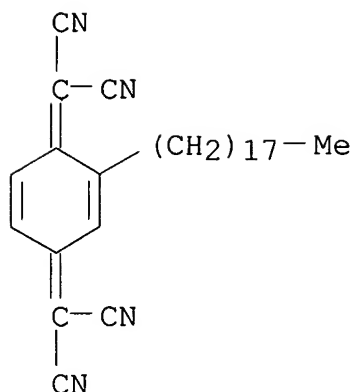
RN 101853-37-6 HCA

CN Propanedinitrile, 2,2'-(2-octadecyl-2,5-cyclohexadiene-1,4-diylidene)bis-, compd. with 2-(4,5-dimethyl-1,3-dithiol-2-ylidene)-4,5-dimethyl-1,3-dithiole (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 101853-36-5

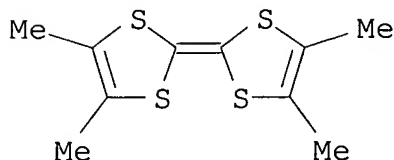
CMF C30 H40 N4



CM 2

CRN 50708-37-7

CMF C10 H12 S4



IC ICM H01L049-02
 ICS H01L029-28
 ICA C08G061-00; C08G073-00
 CC 76-14 (Electric Phenomena)
 ST switch org insulator **electrode**
 IT Electric switches and switching
 (org. **electrode** and insulators for)
 IT 110-00-9D, derivs., polymers 9033-83-4, Poly(phenylene)
 12369-74-3, Lutetium diphthalocyanine 25014-15-7,
 Poly(2-vinylpyridine) **25067-58-7, Polyacetylene**
 25067-59-8 25067-97-4 25135-12-0, Poly(1-vinyl naphthalene)
 25135-16-4, Polynaphthalene 25190-62-9, Poly p-phenylene
 25212-74-2, Poly p-phenylene sulfide 25233-30-1, Polyaniline
 25667-40-7, Poly p-phenylene oxide 26009-24-5, Poly p-phenylene
 vinylene 26499-97-8, Poly m-phenylene 27880-39-3,
 Poly(1,4-phenylenemethylene) 27987-87-7, Polydiacetylene
 28406-56-6, Poly(2-vinylnaphthalene) 30604-81-0, Polypyrrole
 34801-99-5, Poly(vinyl ferrocene) 51325-05-4, Polythienylene
 52410-66-9, Poly(seleno-1,4-phenylene) 89231-09-4, Polyselenophene
 91201-85-3 **101853-37-6** 101909-00-6 112261-44-6

(elec. switches contg.)

L67 ANSWER 10 OF 11 HCA COPYRIGHT 2007 ACS on STN

107:68825 Acceptor-type polydiacetylene - synthesis and electric conduction. Naito, Katsuyuki; Okamoto, Masayoshi (Chem. Lab., Toshiba Res. Dev. Cent., Kawasaki, Japan). Synthetic Metals, 18(1-3), 417-22 (English) 1987. CODEN: SYMEDZ. ISSN: 0379-6779.

AB Poly(2,4-hexadiyne)s, possessing electron withdrawing substituents at the 1- and 6-positions, are acceptors, and form charge-transfer complexes with donors to increase their cond. 1,6-Dibromohexa-2,4-diyne was polymd. in the melt by heating, resulting in the formation of a black polymer, which was sol. in org. solvents. The polymer made charge-transfer complexes with donors, such as NH₃ and TTF. Consequently, its cond. increased to 10⁻¹ Scm⁻¹. Several conditions such as temp. and NH₃ pressure, which had an effect on cond., were investigated. 1,6-Diiodohexa-2,4-diyne was also polymd. in the melt by heating, in which case the polymer obtained was slightly sol. in org. solvents. The whitish polycrystal 1,6-diiodohexa-2,4-diyne film was polymd. at -30° by UV irradiation. The brown polymer film apparently kept its initial structure, while it was amorphous according to x-ray anal. Both the golden poly(2,4-hexadiyne-1,6-diyl ditosylate) single crystal and the red crosslinked polyester pellet, made from 2,4-hexadiyne-1,6-diol and adipoly dichloride, formed black charge-transfer complexes with NH₃, their cond. being raised to 10⁻⁴-10⁻⁶ Scm⁻¹. The strength of poly(diacetylene), when used as an acceptor or as a donor, was able to be controlled by changing its substituent. Acceptor-donor relations among poly(diacetylene)s and dopants are proposed.

IT 109580-15-6

(elec. conduction in)

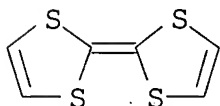
RN 109580-15-6 HCA

CN 2,4-Hexadiyne-1,6-diol, bis(4-methylbenzenesulfonate), homopolymer, compd. with 2-(1,3-dithiol-2-ylidene)-1,3-dithiole (9CI) (CA INDEX NAME)

CM 1

CRN 31366-25-3

CMF C6 H4 S4

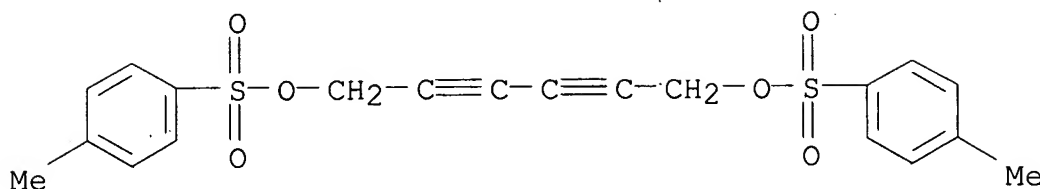


CM 2

CRN 32535-60-7
 CMF (C20 H18 O6 S2)x
 CCI PMS

CM 3

CRN 32527-15-4
 CMF C20 H18 O6 S2



CC 76-2 (Electric Phenomena)
 IT Electric conductivity and conduction
 (in **polyacetylenes**)
 IT Polyesters, properties
 (**polyacetylene**-, polydiacetylenes, elec. cond. in)
 IT **Polyacetylenes**, properties
 (polydiacetylenes, elec. cond. in)
 IT **Polyacetylenes**, properties
 (polyester-, polydiacetylenes, elec. cond. in)
 IT **109580-15-6** 109604-04-8
 (elec. conduction in)

L67 ANSWER 11 OF 11 HCA COPYRIGHT 2007 ACS on STN

96:7315 Electronic structure of some simple polymers and highly conducting and biopolymers. Ladik, J.; Suhai, S.; Seel, M. (Univ. Erlangen-Nuernberg, Erlangen, D-8520, Fed. Rep. Ger.). ACS Symposium Series, 162 (Photon, Electron, Ion Probes Polym. Struct. Prop.), 73-80 (English) 1981. CODEN: ACSMC8. ISSN: 0097-6156.

AB The Hartree-Fock band structures of polymers are calcd. by an ab initio LCAO-SCF method which includes non-local exchange and full-self-consistency. The method is applied to **polyacetylene** [25067-58-7], polydiacetylene [27987-87-7], TCNQ polymer [26810-79-7], TTF polymer [56388-66-0], nitrogen sulfide polymer [56422-03-8] and 4 homopolypeptide chains. All of these systems have relatively broad valence and conduction bands (.gtorsim.0.5 eV).

IT **25067-58-7** **56388-66-0**
 (electronic structure of, ab initio LCAO-SCF calcn. of)

RN 25067-58-7 HCA

CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-86-2

CMF C2 H2

 $\text{HC}\equiv\text{CH}$

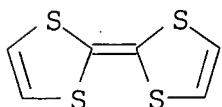
RN 56388-66-0 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)-, homopolymer (9CI) (CA
INDEX NAME)

CM 1

CRN 31366-25-3

CMF C6 H4 S4

CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 34, 65ST electronic structure polymer; band structure polymer; mol orbital
LCAO SCF; **polyacetylene** electronic structure; TCNQ polymer
electronic structure; TTF polymer electronic structure; nitrogen
sulfide polymer electronic structure; polypeptide electronic
structureIT **25067-58-7** 26810-79-7 27987-87-7 52685-04-8
56388-66-0 80236-91-5 80236-92-6 80236-93-7

(electronic structure of, ab initio LCAO-SCF calcn. of)

=>

=> D L55 1-3 CBIB ABS HITSTR HITIND

L55 ANSWER 1 OF 3 HCA COPYRIGHT 2007 ACS on STN

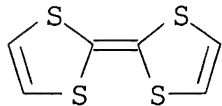
142:270691 In situ patterning of electrolyte for molecular information storage devices. Bocian, David F.; Kuhr, Werner G.; Lindsey, Jonathan S.; Misra, Veena (The Regents of the University of California, USA). PCT Int. Appl. WO 2005017953 A2 20050224, 71 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-US15615 20040518. PRIORITY: US 2003-2003/PV473782 20030527.

AB This invention pertains to methods assembly of org. mols. and electrolytes in hybrid electronics. In 1 embodiment, a method is provided that involves contacting a surface/**electrode** with a compd. of formula: R-L2-M-L1-Z1 where Z1 is a surface attachment group; L1 and L2 are independently linker or **covalent bonds**; M is an information storage mol.; and R is a protected or unprotected reactive site or group; where the contacting results in attachment of the redox-active moiety to the surface via the surface attachment group. The method includes contacting the surface-attached information storage mol. with an electrolyte having the formula J-Q where J is a charged moiety (e.g., an electrolyte); and Q is a reactive group that is reactive with the reactive group (R) and attaches J to the information storage mol. thereby patterning the electrolyte on the surface.

IT **31366-25-3**, Tetrathiafulvalene **54489-01-9**, Tetraselenafulvalene (redox-active moiety; in situ patterning of electrolyte for mol. information storage devices)

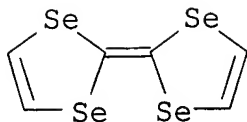
RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



RN 54489-01-9 HCA

CN 1,3-Diselenole, 2-(1,3-diselenol-2-ylidene)- (9CI) (CA INDEX NAME)



IC ICM H01L

CC 76-2 (Electric Phenomena)

Section cross-reference(s): 74

IT 91-22-5D, Quinoline, derivs. 92-82-0D, Phenazine, derivs.
 92-83-1D, Xanthene, derivs. 92-84-2D, Phenothiazine, derivs.
 106-50-3, 1,4-Phenylenediamine, uses 260-94-6D, Acridine, derivs.
 366-18-7D, 2,2'-Bipyridine, derivs. 553-26-4D, 4,4'-Bipyridine,
 derivs. **31366-25-3**, Tetrathiafulvalene **54489-01-9**
 , Tetraselenafulvalene
 (redox-active moiety; in situ patterning of electrolyte for mol.
 information storage devices)

L55 ANSWER 2 OF 3 HCA COPYRIGHT 2007 ACS on STN

141:411048 Novel bonding modes between tetrathiafulvalenes (TTFs) and transition metal centers: π - **bonding** and

covalent TTFSiMe₂-ML_n coordination to platinum. Jayaswal, Mathuresh N.; Peindy, Harmel N.; Guyon, Fabrice; Knorr, Michael; Avarvari, Narcis; Fourmigue, Marc (Laboratoire de Chimie des Matériaux et Interfaces, Faculté des Sciences et des Techniques, Université de Franche-Comté, Besançon, 25030, Fr.). European Journal of Inorganic Chemistry (13), 2646-2651 (English) 2004. CODEN: EJICFO. ISSN: 1434-1948. OTHER SOURCES: CASREACT 141:411048. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

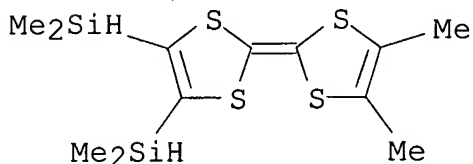
AB Two novel strategies for coordinating TTF to transition metal centers have been developed. The reaction of tetrathiafulvalene (TTF) or 3,4-dimethyltetrathiafulvalene (o-Me₂TTF) with [Pt(η^2 -C₂H₄)(PPh₃)₂] leads to the π complexes [Pt(η^2 -TTF)(PPh₃)₂] (1) and [Pt(η^2 -o-Me₂TTF)(PPh₃)₂] (2), resp. An x-ray crystallog. study performed on 2 confirmed, that TTFs act as a π acidic ligand. NMR studies revealed the existence, in soln., of an equil. between free and complexed TTF. Dilithiation of o-Me₂TTF and subsequent silylation with ClSiMe₂H afforded 3,4-dimethyl-3',4'-(dimethylsilyl)tetrathiafulvalene (3), which has been structurally characterized. 3 Reacts by oxidative addn. across [Pt(η^2 -C₂H₄)(PPh₃)₂] to give [Pt(η^2 -o-(SiMe₂)₂TTFMe₂)(PPh₃)₂] (4), in which the TTF ligand is covalently ligated to platinum via SiMe₂ bridges. The redox properties of 3 and 4 have been investigated by cyclic voltammetry. Strong **cathodic** shifts of the two redox processes were obsd. for 4, implying the TTF core.

IT **793683-23-5P**

(crystal structure; electrochem. and structural study of pi-
bonding and **covalent bonding** modes
 between tetrathiafulvalenes and platinum)

RN 793683-23-5 HCA

CN Silane, [2-(4,5-dimethyl-1,3-dithiol-2-ylidene)-1,3-dithiole-4,5-
 diyl]bis[dimethyl- (9CI) (CA INDEX NAME)]

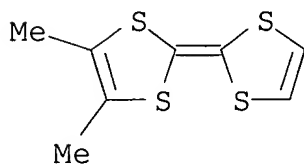


IT 62024-60-6

(electrochem. and structural study of pi-**bonding** and
covalent bonding modes between
 tetrathiafulvalenes and platinum)

RN 62024-60-6 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)-4,5-dimethyl- (9CI) (CA
 INDEX NAME)

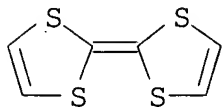


IT 31366-25-3, Tetrathiafulvalene

(electrochem. and structural study of pi-**bonding** and
covalent bonding modes between
 tetrathiafulvalenes and platinum)

RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



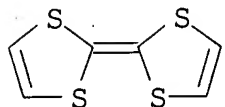
CC 29-13 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 72, 75, 78

ST tetrathiafulvalene platinum **covalent pi bond**
 prepn crystal mol structure; electrochem redox tetrathiafulvalene
 platinum complex; crystal mol structure dimethylsilyl
 tetrathiafulvalene platinum phosphine complex

IT 793683-23-5P

- (crystal structure; electrochem. and structural study of pi-**bonding** and **covalent bonding** modes between tetrathiafulvalenes and platinum)
- IT 793683-22-4P
(crystal structure; electrochem. and structural study of pi-**bonding** and **covalent bonding** modes between tetrathiafulvalenes and platinum)
- IT 62024-60-6
(electrochem. and structural study of pi-**bonding** and **covalent bonding** modes between tetrathiafulvalenes and platinum)
- IT 793683-24-6P
(electrochem. and structural study of pi-**bonding** and **covalent bonding** modes between tetrathiafulvalenes and platinum)
- IT 1066-35-9, Chlorodimethylsilane 12120-15-9, (η^2 -Ethylene)bis(triphenylphosphine)platinum 31366-25-3, Tetrathiafulvalene
(electrochem. and structural study of pi-**bonding** and **covalent bonding** modes between tetrathiafulvalenes and platinum)
- IT 793683-21-3P
(electrochem. and structural study of pi-**bonding** and **covalent bonding** modes between tetrathiafulvalenes and platinum)
- L55 ANSWER 3 OF 3 HCA COPYRIGHT 2007 ACS on STN
122:309791 Biofunctional **electrodes**. (V). Immobilization of glucose oxidase in α -cyclodextrin polymer. Wu, Hui-Huang; Wu, Bao-Zhang; Zhou, Shao-Min (Dep. Chem., Xiamen Univ., Xiamen, 361005, Peop. Rep. China). Gaodeng Xuexiao Huaxue Xuebao, 15(7), 1026-9 (English) 1994. CODEN: KTHPDM. ISSN: 0251-0790. Publisher: Gaodeng Jiaoyu Chubanshe.
- AB This paper describes a new design of glucose enzyme sensor in which glucose oxidase (GOD) is immobilized in a condensation α -cyclodextrin polymer membrane and a mediator is molecularly induced in the cyclodextrin cavity. The FTIR measurement of the immobilized enzyme membrane indicated that GOD was attached to the cyclodextrin polymer by **covalent bonding**. The different GOD enzyme **electrodes** with mediators were prepd. and their performances were compared. The GOD **electrode** with tetrathiafulvalene showed good amperometric response to glucose in test soln. and promised to be a good 2nd generation glucose sensor.
- IT 31366-25-3, Tetrathiafulvalene
(immobilization of glucose oxidase in α -cycloodextrin polymer as bioelectrode)
- RN 31366-25-3 HCA

CN 1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA INDEX NAME)



CC 7-7 (Enzymes)
ST glucose oxidase immobilization cyclodextrin **electrode**
IT **Electrodes**
(bio-, immobilization of glucose oxidase in α -cyclodextrin polymer as bioelectrode)
IT **31366-25-3, Tetrathiafulvalene**
(immobilization of glucose oxidase in α -cyclodextrin polymer as bioelectrode)

=> D L68 1-8 TI

L68 ANSWER 1 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI (Trialkoxysilyl)tetrathiafulvalenes: Precursors of organized organic-inorganic hybrid materials by sol-gel chemistry

L68 ANSWER 2 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Self-organization of a tetrasubstituted tetrathiafulvalene (TTF) in a silica based hybrid organic-inorganic material

L68 ANSWER 3 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Molecular architecture of regularly mixed π -conjugated systems using diacetylene solid-state polymerization

L68 ANSWER 4 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Synthesis of tetrathiafulvalene polymers

L68 ANSWER 5 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Syntheses and electrical conductivity of polyamides containing tetrathiafulvalene moieties in the main chain

L68 ANSWER 6 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Syntheses of poly(urethanes) and poly(sulfonates) containing tetrathiafulvalene nuclei in the backbone

L68 ANSWER 7 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Synthesis of tetrathiafulvalene-containing polyamides

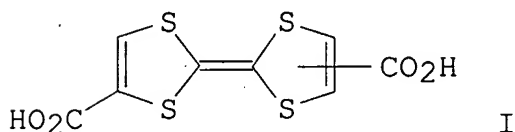
L68 ANSWER 8 OF 8 HCA COPYRIGHT 2007 ACS on STN
TI Charge-transfer polymers containing 7,7,8,8-tetracyanoquinodimethane and tetrathiafulvalene

=> D L68 5,8 CBIB ABS HITSTR HITIND

L68 ANSWER 5 OF 8 HCA COPYRIGHT 2007 ACS on STN

101:73176 Syntheses and electrical conductivity of polyamides containing tetrathiafulvalene moieties in the main chain. Watanabe, Masayoshi; Iida, Tadashi; Sanui, Kohei; Ogata, Naoya; Kobayashi, Tadahiko; Ohtaki, Zentaro (Dep. Chem., Sophia Univ., Tokyo, 102, Japan). Journal of Polymer Science, Polymer Chemistry Edition, 22(6), 1299-307 (English) 1984. CODEN: JPLCAT. ISSN: 0449-296X.

GI



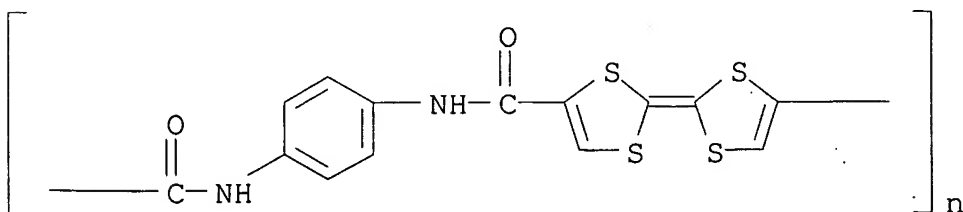
AB Polyamides contg. tetrathiafulvalene (TTF) moieties were synthesized by direct polycondensation of I with arom. diamines (i.e., p-phenylenediamine, 4,4'-diaminodiphenyl ether, and 2,2'-bis[4-(4-aminophenyl)phenyl]propane) in the presence of PPh₃, C₂Cl₆, and pyridine. Complexes of these polyamides with Br consisted of TTF cation radical (TTF[±]) salts, which resulted from the charge transfer of TTF moieties to Br. The elec. cond. of undoped polyamides increased with a decrease in length of the arom. diamine. By doping with Br the cond. of the polyamides were enhanced by 3-5 orders of magnitude and reached 10⁻⁵-10⁻⁹ S/cm. Max. cond. was obsd. at the doping ratio of [Br]/[repeat unit] <1:1. The elec. conduction in the Br complexes may be attributed to the hopping of odd electrons from TTF[±] between TTF moieties.

IT **91314-65-7P 91314-70-4P 91314-76-0P**

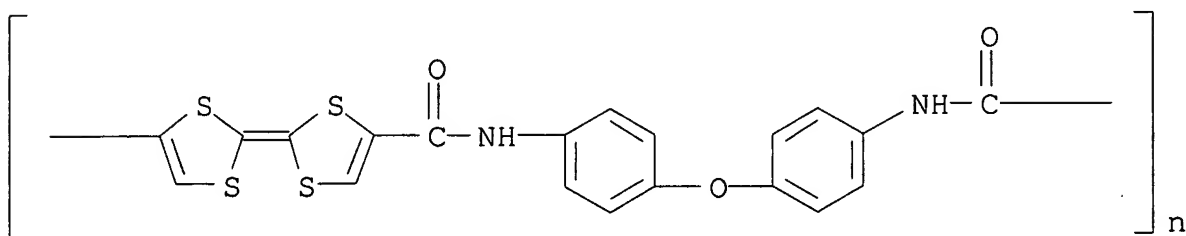
(prepn. and elec. cond. of)

RN 91314-65-7 HCA

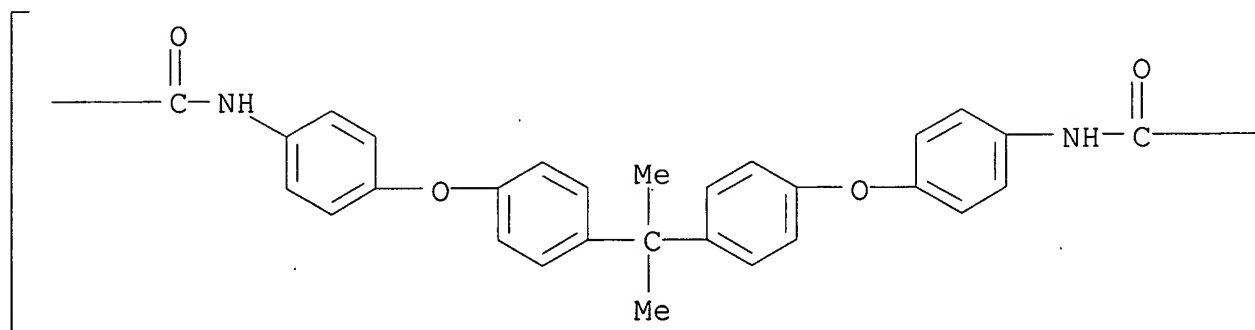
CN Poly(1,3-dithiol-4-yl-2-ylidene-1,3-dithiol-4-yl-2-ylidenecarbonylimino-1,4-phenyleneiminocarbonyl) (9CI) (CA INDEX NAME)



RN 91314-70-4 HCA
 CN Poly(1,3-dithiol-4-yl-2-ylidene-1,3-dithiol-4-yl-2-ylidenecarbonylimino-1,4-phenyleneoxy-1,4-phenyleneiminocarbonyl)
 (9CI) (CA INDEX NAME)

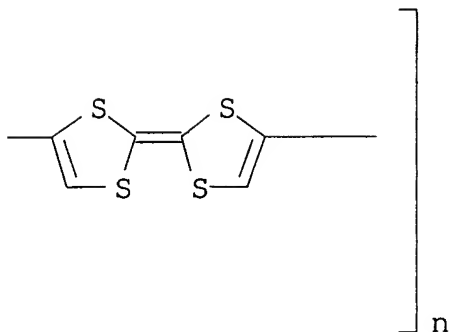


RN 91314-76-0 HCA
 CN Poly[1,3-dithiol-4-yl-2-ylidene-1,3-dithiol-4-yl-2-ylidenecarbonylimino-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenyleneiminocarbonyl] (9CI)
 (CA INDEX NAME)



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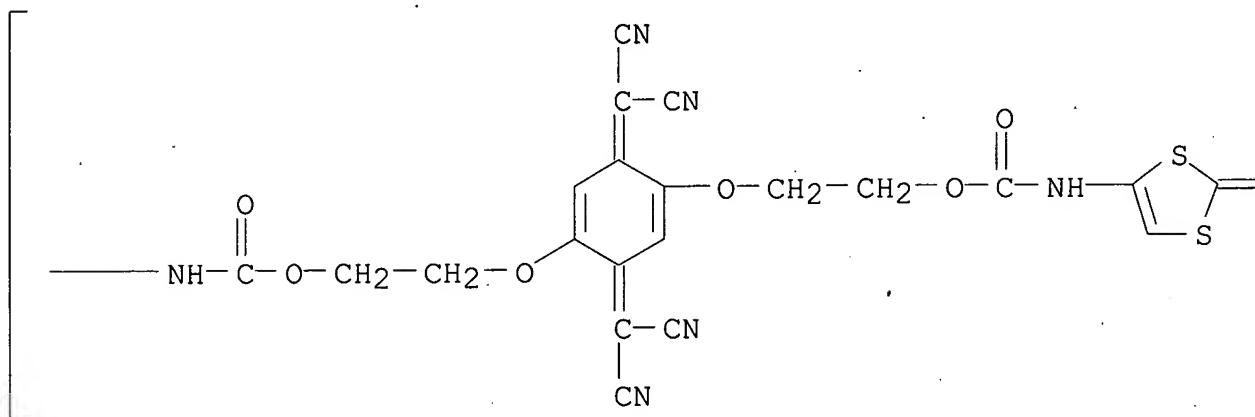
PAGE 1-B



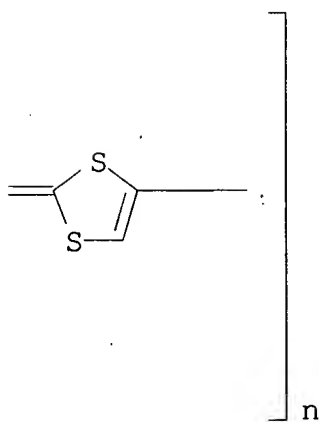
- CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 76
- IT 91206-08-5DP, complexes. with bromine 91206-08-5P 91206-09-6DP,
complexes. with bromine 91206-09-6P 91206-10-9DP, complexes.
with bromine 91206-10-9P **91314-65-7P 91314-70-4P**
91314-76-0P
(prepn. and elec. cond. of)
- L68 ANSWER 8 OF 8 HCA COPYRIGHT 2007 ACS on STN
- 84:151023 Charge-transfer polymers containing 7,7,8,8-tetracyanoquinodimethan and tetrathiafulvalene. Hertler, W. R. (Cent. Res. Dev. Dep., E. I. du Pont de Nemours and Co., Wilmington, DE, USA). Journal of Organic Chemistry, 41(8), 1412-16 (English) 1976. CODEN: JOCEAH. ISSN: 0022-3263.
- GI For diagram(s), see printed CA Issue.
- AB 2,5-Bis(2-hydroxyethoxy)-7,7,8,8-tetracyanoquinodimethane (I) [58268-29-4] is prep'd. and treated with 1,1'-diisocyanatoferrocene to give a black polyurethane [58298-32-1] which has elec. cond. $3 + 10^{-3}$ ohm-lcm-1, compared with $2.4 + 10^{-1}$ ohm-lcm-1 for the nonpolymeric model 2,5-bis(2-hydroxyethoxy)-7,7,8,8-tetracyanoquinodimethan-1,1'-bis(methoxycarbonyl)ferrocene complex [58312-84-8]. I and 4,4'-diisocyanatotetrathiafulvalene also give a black polyurethane [58268-57-8] which is amorphous and has elec. cond. $1.66 + 10^{-7}$ ohm-lcm-1. A tetrathiafulvalene polyurethane (II) [58268-58-9] is prep'd. from 4,4'-diisocyanatotetrathiafulvalene and 4,4'-bis(hydroxymethyl)tetrathiafulvalene (III) [58268-45-4] and has elec. cond. $2 + 10^{-6}$ ohm-lcm-1. Conversion of II to its iodine complex [58710-41-1] increases the elec. cond. to $2.6 + 10^{-6}$ ohm-lcm-1.
- IT **58268-60-3 58716-40-8**
(elec. cond. of)
- RN 58268-60-3 HCA

CN Poly[1,3-dithiol-4-yl-2-ylidene-1,3-dithiol-4-yl-2-ylideneiminocarbonyloxy-1,2-ethanediyl-3,6-bis(dicyanomethylene)-1,4-cyclohexadiene-1,4-diyl]oxy-1,2-ethanediylloxycarbonylimino] (9CI) (CA INDEX NAME)

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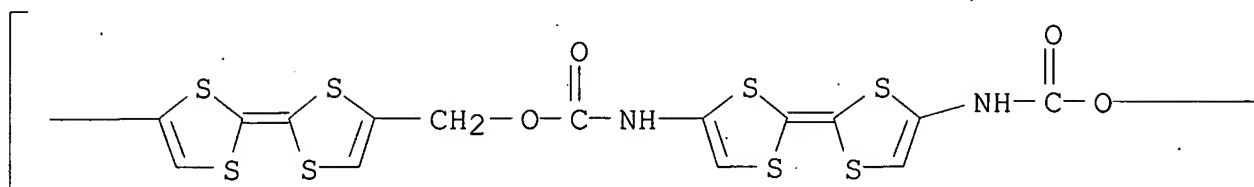
PAGE 1-B



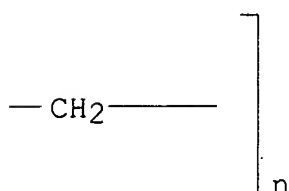
RN 58716-40-8 HCA

CN Poly(1,3-dithiol-4-yl-2-ylidene-1,3-dithiol-4-yl-2-ylideneiminomethyleneoxycarbonylimino-1,3-dithiol-4-yl-2-ylidene-1,3-dithiol-4-yl-2-ylideneiminocarbonyloxymethylene) (9CI) (CA INDEX NAME)

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CC 35-3 (Synthetic High Polymers)
 Section cross-reference(s): 25, 28, 76
 IT 58268-57-8 58268-58-9 **58268-60-3** 58298-32-1
 58312-83-7 58312-84-8 58710-41-1 **58716-40-8**
 58716-41-9
 (elec. cond. of)

=> D L69 1-11 CBIB ABS HITSTR HITIND

L69 ANSWER 1 OF 11 HCA COPYRIGHT 2007 ACS on STN

144:141346 Highly effective phosphate electrochemical sensor based on tetrathiafulvalene. [Erratum to document cited in CA143:487884].
 Lu, Haiyan; Xu, Wei; Zhang, Deqing; Zhu, Daoben (Laboratory of Organic Solids, Center for Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Chemical Communications (Cambridge, United Kingdom) (1), 112-114 (English) 2006. CODEN: CHCOFS. ISSN: 1359-7345.
 Publisher: Royal Society of Chemistry.

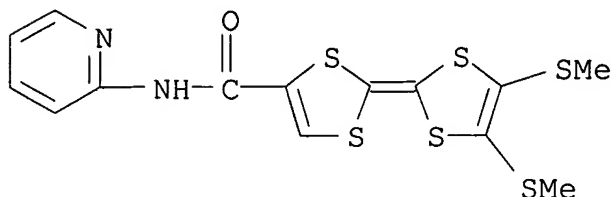
AB The following exptl. details should have been included in the caption to Figure 5 and in the electronic supplementary information: "Experiments were carried out under nitrogen, at a scan of 40 mV s⁻¹. The working **electrode** was Pt disk **electrode** (diameter: 2 mm), the counter **electrode** was pt wire (diameter: 1 mm) and the potentials were referred to Ag/AgCl."

IT **869795-59-5P**

(phosphate detn. in soln. by cyclic voltammetry with electrochem. chemosensor based on tetrathiafulvalene (Erratum))

RN 869795-59-5 HCA

CN 1,3-Dithiole-4-carboxamide, 2-[4,5-bis(methylthio)-1,3-dithiol-2-ylidene]-N-2-pyridinyl- (9CI) (CA INDEX NAME)



IT **869795-60-8**, analysis
(phosphate detn. in soln. by cyclic voltammetry with electrochem. chemosensor based on tetrathiafulvalene (Erratum))

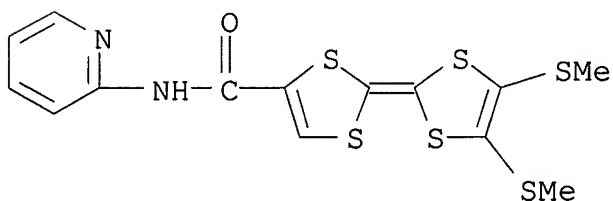
RN 869795-60-8 HCA

CN Phosphate, dihydrogen, compd. with 2-[4,5-bis(methylthio)-1,3-dithiol-2-ylidene]-N-2-pyridinyl-1,3-dithiole-4-carboxamide (1:2)
(9CI) (CA INDEX NAME)

CM 1

CRN 869795-59-5

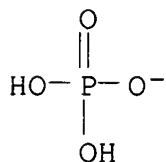
CMF C14 H12 N2 O S6



CM 2

CRN 14066-20-7

CMF H2 O4 P



CC 79-3 (Inorganic Analytical Chemistry)

IT **869795-59-5P**

(phosphate detn. in soln. by cyclic voltammetry with electrochem.)

chemosensor based on tetrathiafulvalene (Erratum))

IT **869795-60-8**, analysis

(phosphate detn. in soln. by cyclic voltammetry with electrochem.
chemosensor based on tetrathiafulvalene (Erratum))

L69 ANSWER 2 OF 11 HCA COPYRIGHT 2007 ACS on STN

144:128634 A photoactive molecular triad as a nanoscale power supply for a supramolecular machine. Saha, Sourav; Johansson, Erik; Flood, Amar H.; Tseng, Hsian-Rong; Zink, Jeffrey I.; Stoddart, J. Fraser (The California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, Los Angeles, CA, 90095-1569, USA). Chemistry--A European Journal, 11(23), 6846-6858 (English) 2005. CODEN: CEUJED. ISSN: 0947-6539. OTHER SOURCES: CASREACT 144:128634. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB A tetrathiafulvalene-porphyrin-fullerene (TTF-P-C60) mol. triad, which generates elec. current by harnessing light energy when self-assembled onto gold **electrodes**, was developed. The triad, composed of three unique electroactive components, namely, (1) an electron-donating TTF unit, (2) a chromophoric porphyrin unit, and (3) an electron-accepting C60 unit, was synthesized in a modular fashion. A disulfide-based anchoring group was tagged to the TTF end of the mol. to allow its self-assembly on gold surfaces. The surface coverage by the triad in a self-assembled monolayer (SAM) is 1.4 nm² per mol., a d. which is consistent with hexagonal close-packing of the spherical C60 component (diam. .apprx.1 nm). In a closed electronic circuit, a triad-SAM functionalized working-**electrode** generates a switchable photocurrent of .apprx.1.5 μ A cm⁻² when irradiated with a 413 nm Kr-ion laser, a wavelength which is close to the porphyrin chromophore's absorption max. peak at 420 nm. The elec. energy generated by the triad at the expense of the light energy is ultimately exploited to drive a supramol. machine as a [2]pseudorotaxane comprised of a π -electron-deficient tetracationic cyclobis(paraquat-p-phenylene) (CBPQT4+) cyclophane and a π -electron-rich 1,5-bis[(2-hydroxyethoxy)ethoxy]naphthalene (BHEEN) thread. The redox-induced dethreading of the CBPQT4+ cyclophane from the BHEEN thread can be monitored by measuring the increase in the fluorescence intensity of the BHEEN unit. A gradual increase in the fluorescence intensity of the BHEEN unit concomitant with the photocurrent generation, event at a potential (0 V) much lower than that required (-300 mV) for the direct redn. of the CBPQT4+ unit, confirms that the dethreading process is driven by the photocurrent generated by the triad-SAM.

IT **850347-33-0D**, surface tied to gold

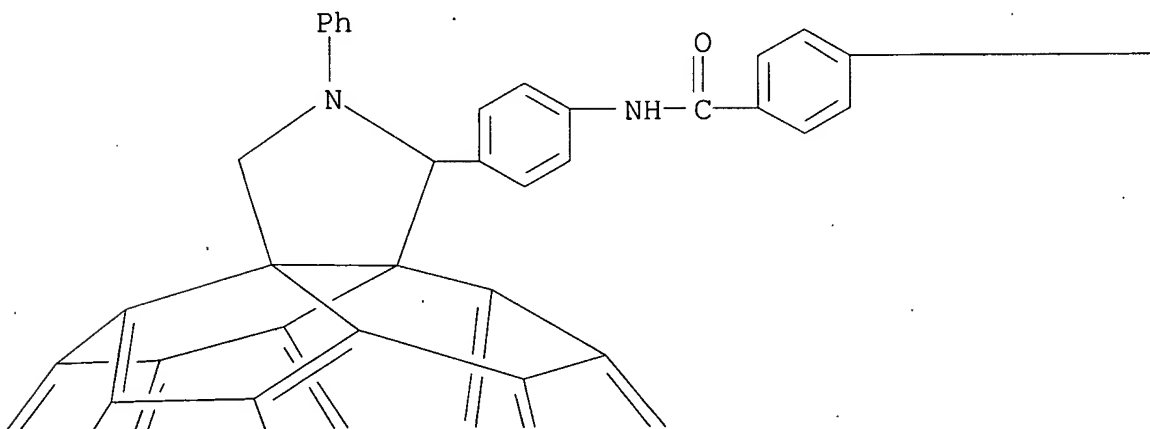
(photoactive mol. triad as nanoscale power supply for supramol. machine)

RN 850347-33-0 HCA

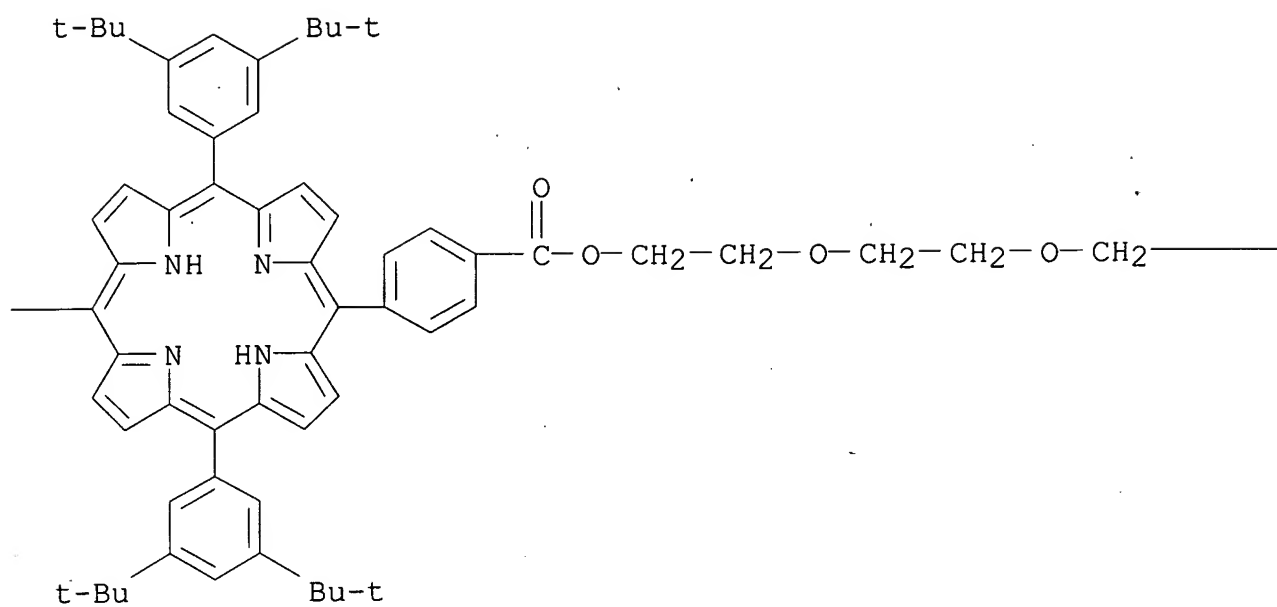
CN 1,2-Dithiolane-3-pentanoic acid, 2-[2-[[2-[4-[[2-[2-[[4-[10,20-

bis[3,5-bis(1,1-dimethylethyl)phenyl]-15-[4-[[[4-(1',5'-dihydro-1'-methyl-2'H-[5,6]fullereno-C60-Ih-[1,9-c]pyrrol-2'-yl)phenyl]amino]carbonyl]phenyl]-21H,23H-porphin-5-yl]benzoyl]oxy]ethoxy]ethoxy]methyl]-1,2-dithiol-2-ylidene]-1,2-dithiol-4-yl]methoxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

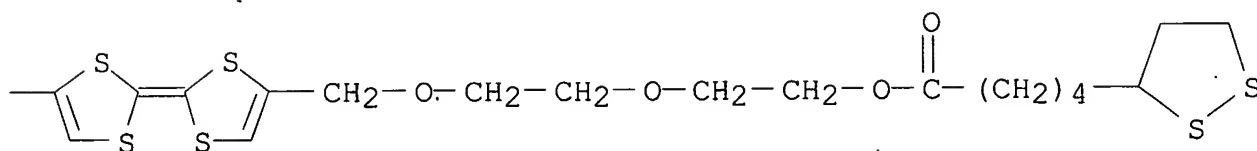
PAGE 1-A



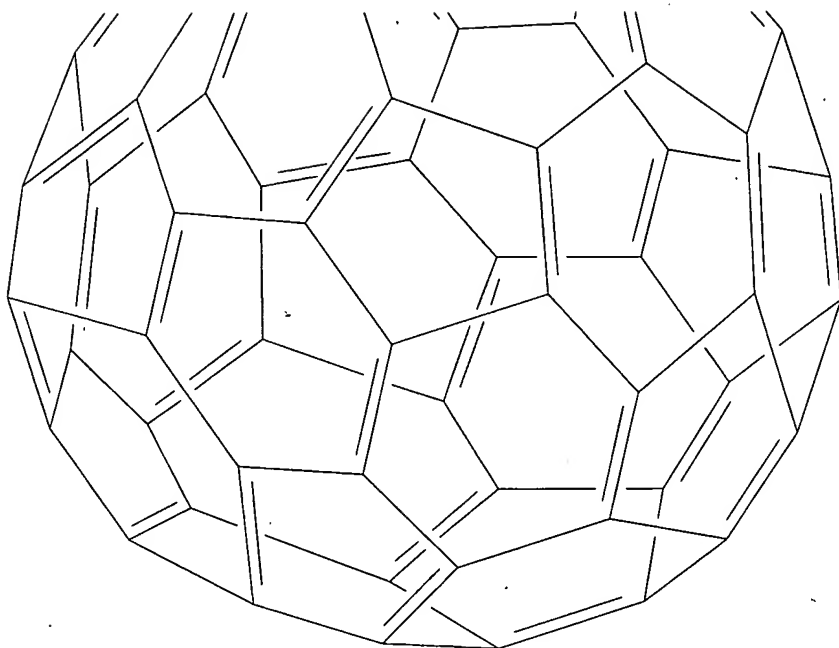
PAGE 1-B



PAGE 1-C



PAGE 2-A



(photoactive mol. triad as nanoscale power supply for supramol. machine)

CC 22-13 (Physical Organic Chemistry)

Section cross-reference(s): 52, 72, 73, 74, 76

IT 7440-57-5D, Gold, chain dithiol deriv. tetrathiafulvalene-porphyrin-fullerene mol. triad tied to surface of **850347-33-0D**, surface tied to gold

(photoactive mol. triad as nanoscale power supply for supramol. machine)

IT 58268-45-4P 266362-33-8P 290823-80-2P 666729-01-7P

850347-33-0P 873536-32-4P

(photoactive mol. triad as nanoscale power supply for supramol. machine)

L69 ANSWER 3 OF 11 HCA COPYRIGHT 2007 ACS on STN

143:487882 A Novel Multisignaling Optical-electrochemical Chemosensor for Anions Based on Tetrathiafulvalene. Lu, Haiyan; Xu, Wei; Zhang, Deqing; Chen, Chuanfeng; Zhu, Daoben (Center for Molecular Science, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Organic Letters, 7(21), 4629-4632 (English) 2005. CODEN: ORLEF7. ISSN: 1523-7060. OTHER SOURCES: CASREACT 143:487882. Publisher: American Chemical Society.

AB A multisignaling optical-electrochem. receptor for anions based on a triad with anthracene and TTF units was prepd. It showed a unique selectivity for fluoride ion over various anions with dramatic

fluorescence enhancement in neutral condition and displayed a special recognition of H_2PO_4^- in electrochem. studies with remarkable **cathodic** displacement of the 1st oxidn. potential (E_{1OX}) of the TTF unit.

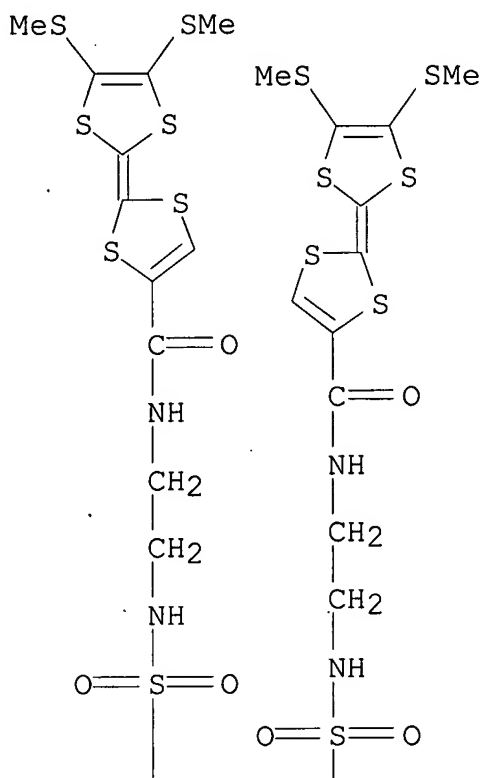
IT **869571-57-3P**

(anions detn. by novel multisignaling optical-electrochem. chemosensor based on tetrathiafulvalene)

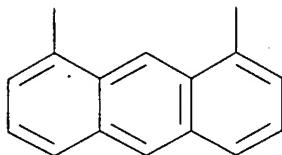
RN 869571-57-3 HCA

CN 1,3-Dithiole-4-carboxamide, N,N'-[1,8-anthracenediylbis(sulfonylimino-2,1-ethanediyl)]bis[2-[4,5-bis(methylthio)-1,3-dithiol-2-ylidene]-(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 79-3 (Inorganic Analytical Chemistry)

IT **869571-57-3P**

(anions detn. by novel multisignaling optical-electrochem.
chemosensor based on tetrathiafulvalene)

L69 ANSWER 4 OF 11 HCA COPYRIGHT 2007 ACS on STN

142:419847 Powering a supramolecular machine with a photoactive molecular triad. Saha, Sourav; Johansson, L. Erik; Flood, Amar H.; Tseng, Hsian-Rong; Zink, Jeffrey I.; Stoddart, J. Fraser (The California NanoSystems Institute and Department of Chemistry and Biochemistry, University of California, Los Angeles, Los Angeles, CA, 90095-1569, USA). Small, 1(1), 87-90 (English) 2005. CODEN: SMALBC. ISSN: 1613-6810. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB A tetrathiafulvalene-porphyrin-C60 mol. triad that forms a self-assembled monolayer on gold-electrode surfaces generates a switchable photocurrent that serves as a basis for incorporating local nanometer-sized power supplies into mol. machines and, in principle, other nanoscale systems. The photocurrent was recorded in both aq. and org. solns. The obsd. photocurrent at 0 V in acetonitrile bodes well for optimizing the system to obtain a true photocell that can generate an open-circuit photovoltage. The photoactive triad was used as power source to drive the dethreading of pseudorotaxane comprised of cyclobis(paraquat-p-phenylene)cyclophane complexed with 1,5-bis[(2-hydroxyethoxy)ethoxy]naphthalene.

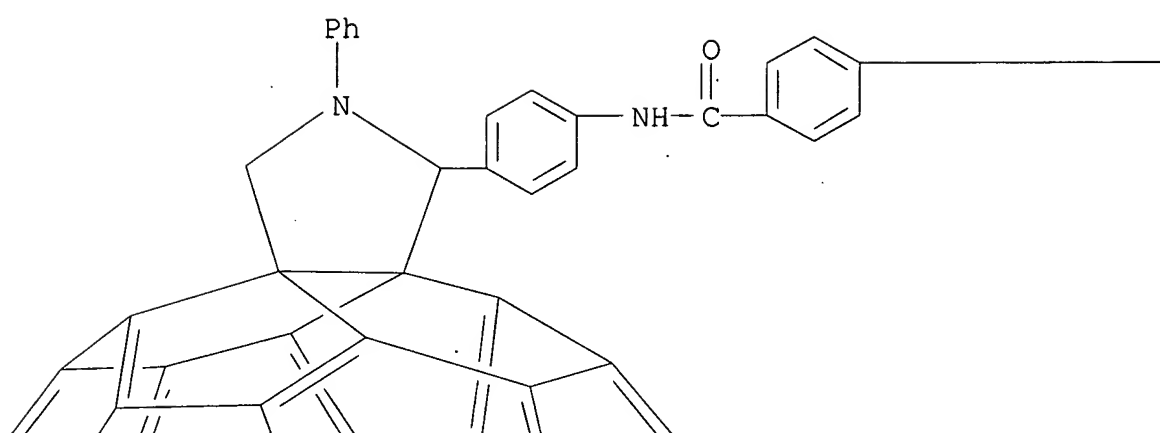
IT **850347-33-0**

(triad; tetrathiafulvalene-porphyrin-C60 photoactive triad and its use as photoinduced power supply to drive pseudorotaxane supramol. machine)

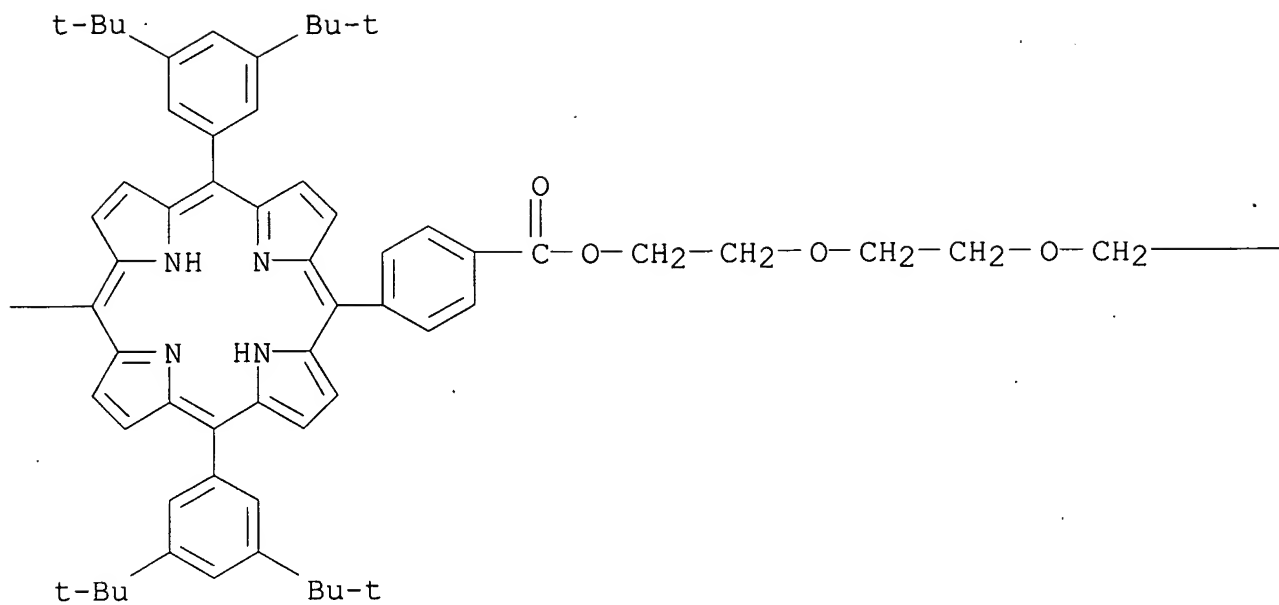
RN 850347-33-0 HCA

CN 1,2-Dithiolane-3-pentanoic acid, 2-[2-[[2-[4-[[2-[2-[[4-[10,20-bis[3,5-bis(1,1-dimethylethyl)phenyl]-15-[4-[[[4-(1',5'-dihydro-1'-methyl-2'H-[5,6]fullereno-C60-Ih-[1,9-c]pyrrol-2'-yl)phenyl]amino]carbonyl]phenyl]-21H,23H-porphin-5-yl]benzoyl]oxy]ethoxy]ethoxy]methyl]-1,2-dithiol-2-ylidene]-1,2-dithiol-4-yl]methoxy]ethoxy]ethyl ester (9CI) (CA INDEX NAME)

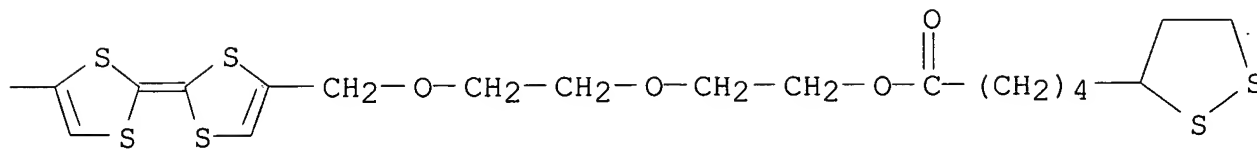
PAGE 1-A



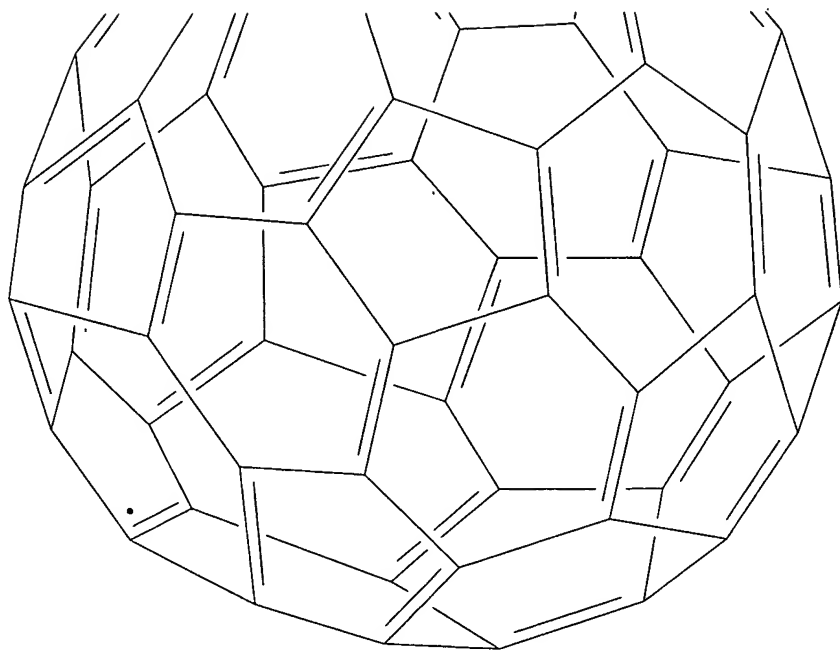
PAGE 1-B



PAGE 1-C



PAGE 2-A



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 52, 72, 76

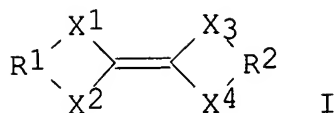
IT 7440-06-4, Platinum, uses 7440-57-5, Gold, uses
(**electrode**; tetrathiafulvalene-porphyrin-C60
photoactive triad and its use as photoinduced power supply to
drive pseudorotaxane supramol. machine)

IT **850347-33-0**
(triad; tetrathiafulvalene-porphyrin-C60 photoactive triad and
its use as photoinduced power supply to drive pseudorotaxane
supramol. machine)

L69 ANSWER 5 OF 11 HCA COPYRIGHT 2007 ACS on STN

140:238479 Electrochemical device. Inatomi, Yuu; Shimada, Mikinari;
Hojo, Nobuhiko (Matsushita Electric Industrial Co., Ltd., Japan).
U.S. Pat. Appl. Publ. US 2004045818 A1 20040311, 16 pp. (English).
CODEN: USXXCO. APPLICATION: US 2003-648271 20030827. PRIORITY: JP
2002-250416 20020829.

GI



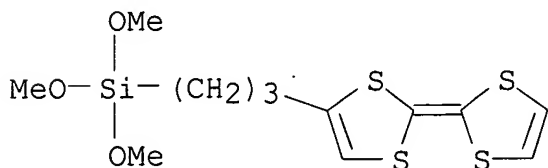
AB The invention concerns an electrochem. device for providing elec. energy by converting an electron transfer involved in an oxidn.-redn. reaction into elec. energy comprising a pos. **electrode**, a neg. **electrode** and an electrolyte, wherein at least one of the pos. and neg. **electrodes** comprises a compd. having a structure represented by the general formula (I), where R1 and R2 are independent of each other and each represents a linear or cyclic aliph. group; X1, X2, X3, and X4 are independent of each other and each represents a S atom, an O atom, a Se atom, or a Te atom; and the aliph. group can comprise ≥ 1 selected from the group consisting of an O atom, a N atom, a S atom, a Si atom, a P atom, and a B atom.

IT **668421-58-7**

(electrochem. device)

RN 668421-58-7 HCA

CN Silane, [3-[2-(1,3-dithiol-2-ylidene)-1,3-dithiol-4-yl]propyl]trimethoxy- (9CI) (CA INDEX NAME)



IC ICM C25B011-04

INCL 204291000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ST **battery cathode anode**

IT **Battery anodes**

(electrochem. device)

IT **Secondary batteries**

(lithium; electrochem. device)

IT 7439-93-2, Lithium, uses 25067-58-7D, Polyacetylene,
tetrathiafulvalene functionalized 31366-25-3, Tetrathiafulvalene
35079-58-4 39302-37-9, Lithium titanium oxide 50708-37-7,
Tetramethyl tetrathiafulvalene 57512-85-3 62921-51-1D, reaction
products with polyacetylene 66946-48-3 99159-48-5 118148-32-6
128346-62-3 157289-25-3 157289-26-4 174421-80-8, Cobalt

lithium nitride $\text{Co}_{0.4}\text{Li}_{2.6}\text{N}$ 214604-40-7 668421-55-4
668421-56-5 668421-57-6, Lithium titanium oxide ($\text{LiTi}_5\text{O}_{12}$)
668421-58-7 668421-59-8
(electrochem. device)

L69 ANSWER 6 OF 11 HCA COPYRIGHT 2007 ACS on STN

138:303884 An investigation of the role of the disparate redox states of the tetrathiafulvalene unit in modulating hydrogen bonding interactions in solution. Boyd, Alan S. F.; Cooke, Graeme; Duclairoir, Florence M. A.; Rotello, Vincent M. (School of Engineering and Physical Sciences, William H. Perkin Building, Department of Chemistry, The Centre for Biomimetic Design and Synthesis, Heriot-Watt University, Edinburgh, EH14 4AS, UK). Tetrahedron Letters, Volume Date 2003, 44(2), 303-306 (English) 2002. CODEN: TELEAY. ISSN: 0040-4039. OTHER SOURCES: CASREACT 138:303884. Publisher: Elsevier Science Ltd..

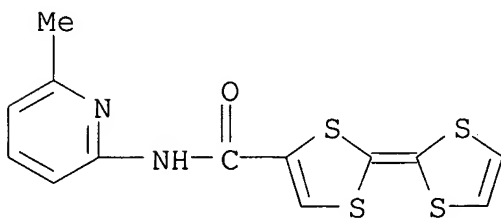
AB We have investigated the electrochem. controlled hydrogen bonding interactions between tetrathiafulvalene host 3 [(6-methylpyridin-2-ylaminocarbonyl)-TTF] and guests butanoic acid and pivalamide. Stabilization of the $3^{+\bullet}$ state is dependent upon the nature of the guest species, whereas both guests prevent pptn. of the electrochem. generated 3^{2+} species at the working **electrode** via hydrogen bonded mol. recognition processes.

IT **508217-71-8**

(radical cation state; cyclic voltammetric and electrostatic potential study of the role of the redox state of the tetrathiafulvalene unit in modulating hydrogen bonding mol. recognition in soln.)

RN 508217-71-8 HCA

CN 1,3-Dithiole-4-carboxamide, 2-(1,3-dithiol-2-ylidene)-N-(6-methyl-2-pyridinyl)-, radical ion(1+) (9CI) (CA INDEX NAME)



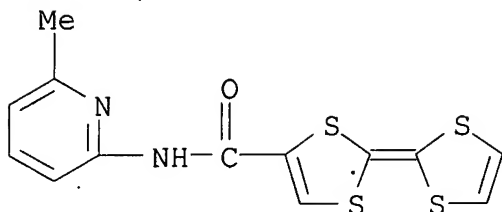
IT **508217-70-7P**

(redox-state-dependent H bonding; cyclic voltammetric and electrostatic potential study of the role of the redox state of the tetrathiafulvalene unit in modulating hydrogen bonding mol. recognition in soln.)

RN 508217-70-7 HCA

CN 1,3-Dithiole-4-carboxamide, 2-(1,3-dithiol-2-ylidene)-N-(6-methyl-2-

pyridinyl)- (9CI) (CA INDEX NAME)



CC 22-12 (Physical Organic Chemistry)
Section cross-reference(s): 72

IT **508217-71-8**
(radical cation state; cyclic voltammetric and electrostatic potential study of the role of the redox state of the tetrathiafulvalene unit in modulating hydrogen bonding mol. recognition in soln.)

IT **508217-70-7P**
(redox-state-dependent H bonding; cyclic voltammetric and electrostatic potential study of the role of the redox state of the tetrathiafulvalene unit in modulating hydrogen bonding mol. recognition in soln.)

L69 ANSWER 7 OF 11 HCA COPYRIGHT 2007 ACS on STN

133:126762 An Efficient, Redox-Enhanced Pair of Hydrogen-Bond Tweezers for Chloride Anion Recognition, a Key Synthons in the Construction of a Novel Type of Organic Metal based on the Secondary Amide-Functionalized Ethylenedithiotetrathiafulvalene, β'' -(EDT-TTF-CONHMe) $_2$ [Cl·H₂O]. Heuze, Karine; Meziere, Cecile; Fourmigue, Marc; Batail, Patrick; Coulon, Claude; Canadell, Enric; Auban-Senzier, Pascale; Jerome, Denis (Laboratoire Sciences Moleculaires aux Interfaces, FRE CNRS, Nantes, 2068, Fr.). Chemistry of Materials, 12(7), 1898-1904 (English) 2000. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB Electrocrystn. of 1,1,2-trichloroethane solns. of the redox-active secondary amide, 3-methylamido-3',4'-ethylenedithiotetrathiafulvalene (EDT-TTF-CONHMe 1) in the presence of Bu₄NF supported on silica gel afforded a mixed-valence chloride salt, formulated (1) $_2$ [Cl·H₂O], from elemental anal. and x-ray crystal structure resln. The chloride anion and water mol. are disordered on the same site, and coordinated to the π -donor mol. by two strong hydrogen bonds involving the amidic N-H and the arom. C-H group ortho to the amide, thereby qualifying a robust pair of tweezers-like cyclic motif. This efficient anion recognition effect is also obsd. in soln., as demonstrated by ¹H NMR downfield shifts of both the N-H and C-H hydrogen atom resonances, as well as by a **cathodic** shift of the oxidn. potential of 1 upon Cl-

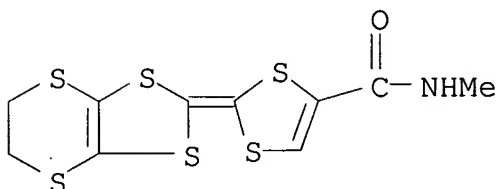
complexation, establishing that the actual electrocrystd. species is a solvated anionic chloride complex $[(1 \cdot Cl^-)(H_2O)_n]$ rather than the free amide. $(1)_2[Cl \cdot H_2O]$ adopts a layered β' -type structure with segregation of the hydrophobic (EDT-TTF) and hydrophilic (amide, Cl^- , H_2O) fragments. The HOMO-HOMO intermol. interaction energies for the donor layers are large and the Fermi surface exhibits a pronounced two-dimensional character. The EPR Dysonian line obsd. <120 K indicates an highly conducting system, confirmed by high room-temp. cond. of 120 S cm^{-1} and metallic behavior down to 0.47 K, with a 167-fold increase of the cond., but no indication however of a transition to a superconducting state, a likely consequence of the Cl^-/H_2O disorder.

IT 253309-99-8

(in N-methylethylenedithiotetrathiafulvalenecarboxamide chloride hydrate electrocrystn. on **anode** from silica gel with adsorbed Bu₄NF in trichloroethane and cyclic voltammetry in MeCN contg. Bu₄NPF₆ and Bu₄NCl)

RN 253309-99-8 HCA

CN 1,3-Dithiole-4-carboxamide, 2-(5,6-dihydro-1,3-dithiolo[4,5-b][1,4]dithiin-2-ylidene)-N-methyl- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 22, 65, 75, 76, 79

IT Adsorbed substances

(N-methylethylenedithiotetrathiafulvalenecarboxamide chloride hydrate electrocrystn. on **anode** from silica gel with adsorbed tetrabutylammonium fluoride in trichloroethane)

IT Silica gel, uses

(N-methylethylenedithiotetrathiafulvalenecarboxamide chloride hydrate electrocrystn. on **anode** from silica gel with adsorbed tetrabutylammonium fluoride in trichloroethane)

IT Oxidation, electrochemical

(of N-methylethylenedithiotetrathiafulvalenecarboxamide on **anode** from silica gel with adsorbed tetrabutylammonium fluoride in trichloroethane in electrocrystn.)

IT 429-41-4, Tetrabutylammonium fluoride

(N-methylethylenedithiotetrathiafulvalenecarboxamide chloride hydrate electrocrystn. on **anode** from silica gel with adsorbed tetrabutylammonium fluoride in trichloroethane)

IT 79-00-5, 1,1,2-Trichloroethane

(N-methylethylenedithiotetrathiafulvalenecarboxamide chloride hydrate electrocrystn. on **anode** from silica gel with adsorbed tetrabutylammonium fluoride in trichloroethane)

IT **253309-99-8**

(in N-methylethylenedithiotetrathiafulvalenecarboxamide chloride hydrate electrocrystn. on **anode** from silica gel with adsorbed Bu₄NF in trichloroethane and cyclic voltammetry in MeCN contg. Bu₄NPF₆ and Bu₄NCl)

L69 ANSWER 8 OF 11 HCA COPYRIGHT 2007 ACS on STN

121:249996 Preparation and analytical testing of mediator-containing photolithographically patterned enzyme membrane **electrodes**

. Wilke, D.; Mueller, H. (Institut Analytik und Umweltchemie, Martin-Luther-Universitaet Halle-Wittenberg, Merseburg, D-06217, Germany). Fresenius' Journal of Analytical Chemistry, 349(8-9), 661-5 (English) 1994. CODEN: FJACES. ISSN: 0937-0633.

AB The application of mediators for measurements with amperometric enzyme sensors was investigated to improve the behavior of sensors with respect to interfering substances or for working under anaerobic conditions. The aim of this investigation is to develop photolithog. patterned enzyme membranes contg. mediators, which facilitate the inexpensive technol. prepn. of patterned sensors. Thin layer platinum **electrodes** were coated with the enzyme membranes and crosslinked by UV light. Measurements were made in a wall-jet configuration using flow injection techniques with or without oxygen in the solns. Optimum properties can be obtained with glucose oxidase-contg. membranes using tetrathiafulvalenes. The interfering substances ascorbic acid, uric acid and acetaminophenol showed no influence on glucose measurements in the range of physiol. concns. The membrane served as a diffusion barrier; a decrease in the applied potential to 300 mV vs. SCE also improved the ratio of the glucose response to the interference response.

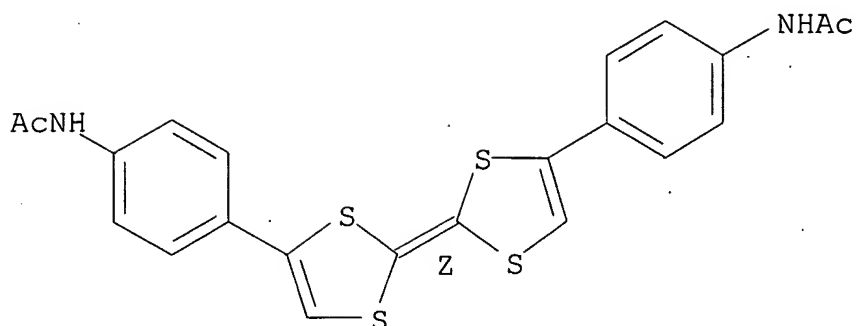
IT **100650-90-6**

(mediator-contg. photolithog. patterned enzyme membrane **electrodes**)

RN 100650-90-6 HCA

CN Acetamide, N-[4-[2-[4-[4-(acetylamino)phenyl]-1,3-dithiol-2-ylidene]-1,3-dithiol-4-yl]phenyl]-, (Z)- (9CI) (CA INDEX NAME)

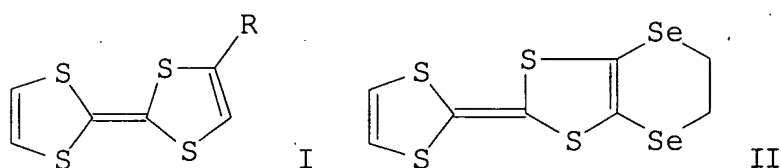
Double bond geometry as shown.



- CC 9-1 (Biochemical Methods)
Section cross-reference(s): 72
- ST amperometric enzyme **electrode** mediator photolithog
membrane; photolithog patterned enzyme membrane prep
electrode; glucose detn oxidase immobilized photolithog
membrane
- IT Immobilization, biochemical
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)
- IT **Electrodes**
(bio-, enzyme, amperometric, mediator-contg. photolithog.
patterned enzyme membrane **electrodes**)
- IT 7440-06-4, Platinum, analysis
(**electrodes**; mediator-contg. photolithog. patterned
enzyme membrane **electrodes**)
- IT 9001-37-0, Glucose oxidase
(immobilized; mediator-contg. photolithog. patterned enzyme
membrane **electrodes**)
- IT 50-99-7, D Glucose, analysis
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)
- IT 102-54-5, Ferrocene 106-51-4, Benzoquinone, analysis 303-98-0,
Ubiquinone 50 1271-86-9, (Dimethylamino)methylferrocene
1518-16-7, 7,7,8,8-Tetracyanoquinodimethane 12086-40-7
12240-15-2, Prussian blue 12679-34-4 31366-25-3,
Tetrathiafulvalene 57811-70-8 66946-48-3,
Bis(ethylenedithio)tetrathiafulvalene 71938-96-0 84366-81-4
100650-90-6 127030-61-9
(mediator-contg. photolithog. patterned enzyme membrane
electrodes)
- L69 ANSWER 9 OF 11 HCA COPYRIGHT 2007 ACS on STN
120:134336 Chalcogenation of tetrathiafulvalene (TTF): synthesis of
alkylthio-TTF and alkylseleno-TTF derivatives and x-ray crystal
structure of ethylenediseleno-TTF (EDS-TTF). Moore, Adrian J.;

Bryce, Martin R.; Cooke, Graeme; Marshallsay, Gary J.; Skabara, Peter J.; Batsanov, Andrei S.; Howard, Judith A. K.; Daley, Stephen T. A. K. (Dep. Chem., Univ. Durham, Durham, DH1 3LE, UK). Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (13), 1403-10 (English) 1993. CODEN: JCPRB4. ISSN: 0300-922X. OTHER SOURCES: CASREACT 120:134336.

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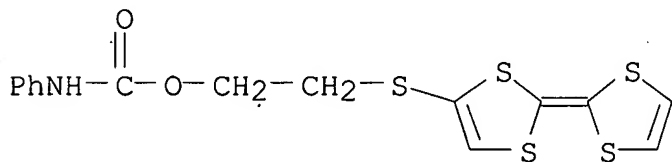


AB The reaction of mono-lithiated tetrathiafulvalene (TTF) with elemental sulfur or elemental selenium at -78°C yields the transient species I ($\text{R} = \text{S}-, \text{Se}-$), resp., which have been trapped with a range of alkyl halides to yield new alkylthio- and alkylseleno-TTF derivs. Reaction of the I ($\text{R} = \text{S}-$) with 2-bromoethanol yields 4-(2-hydroxyethylthio)tetrathiafulvalene which is a particularly versatile building block for the synthesis of a range of new mono-functionalized TTF derivs. contg. ether, ester, acrylate, urethane and vinylthio groups in the side chain. One-pot syntheses of ethylenedithio-TTF and ethylenediseleno-TTF (II) from TTF are reported. The structure of II was been detd. by single crystal x-ray anal. which reveals dimers with mol. planes orthogonal to each other.

IT **153122-09-9P 153122-17-9P**
(prepn. of)

RN 153122-09-9 HCA

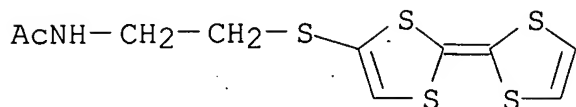
CN Ethanol, 2-[[2-(1,3-dithiol-2-ylidene)-1,3-dithiol-4-yl]thio]-, phenylcarbamate (9CI) (CA INDEX NAME)



RN 153122-17-9 HCA

CN Acetamide, N-[2-[[2-(1,3-dithiol-2-ylidene)-1,3-dithiol-4-

yl]thio]ethyl]- (9CI) (CA INDEX NAME)



- CC 28-5 (Heterocyclic Compounds (More Than One Hetero Atom))
 Section cross-reference(s): 75
- IT 138682-21-0, 4-(2-Hydroxyethylthio)tetrathiafulvalene
 (cathode-alkylation, acylation, or mesylation of)
- IT 24719-68-4P 66946-48-3P 82679-06-9P, 4-
 (Phenylseleno)tetrathiafulvalene 97307-49-8P 128881-69-6P.
 128881-70-9P 136021-59-5P 136021-62-0P 136021-82-4P
 138682-19-6P 138682-20-9P 147677-66-5P 153122-03-3P,
 4-(2-Hydroxyethylseleno)tetrathiafulvalene 153122-04-4P
 153122-05-5P 153122-06-6P 153122-07-7P 153122-08-8P
153122-09-9P 153122-10-2P 153122-12-4P 153122-13-5P
 153122-14-6P **153122-17-9P** 153122-18-0P
 (prepn. of)

L69 ANSWER 10 OF 11 HCA COPYRIGHT 2007 ACS on STN

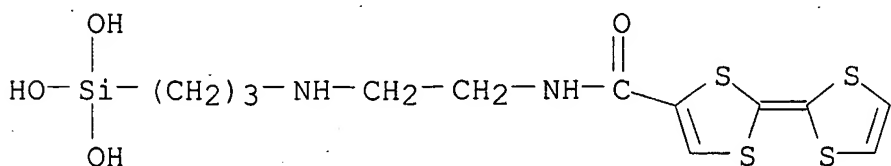
90:177054 Immobilization, electrochemistry, and surface interactions of tetrathiafulvalene on chemically modified ruthenium and platinum oxide **electrodes**. Kuo, Kuo-Nan; Moses, P. R.; Lenhard, J. R.; Green, D. C.; Murray, Royce W. (Kenan Lab. Chem., Univ. North Carolina, Chapel Hill, NC, USA). Analytical Chemistry, 51(6), 745-8 (English) 1979. CODEN: ANCHAM. ISSN: 0003-2700.

AB A monocarboxylic acid deriv. of tetrathiafulvalene is immobilized on RuO₂ and PtO **electrodes** using alkylaminesilane chem. The cyclic voltammogram for oxidn. of this mol. surface state to the radical cation involves larger surface activity non-ideality parameters than does that for further oxidn. to the dication. Oxidn. to the radical cation is facilitated by addn. of chloride to the MeCN solvent.

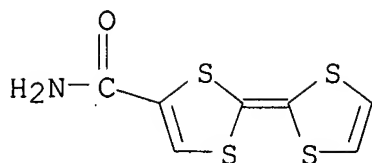
IT **69806-02-6**
 (on surface of platinum oxide and ruthenium oxide
electrodes)

RN 69806-02-6 HCA

CN 1,3-Dithiole-4-carboxamide, 2-(1,3-dithiol-2-ylidene)-N-[2-[[3-(trihydroxysilyl)propyl]amino]ethyl]- (9CI) (CA INDEX NAME)



- CC 72-7 (Electrochemistry)
- ST **electrode** metal oxide tetrathiafulvalene modified;
ruthenium oxide **electrode** tetrathiafulvalene modified;
platinum oxide **electrode** tetrathiafulvalene modified;
radical cation formation oxidn tetrathiafulvalene
- IT **Electrodes**
(chem.-modified, platinum and ruthenium oxides, with
alkylaminesilane and tetrathiafulvalene)
- IT 63822-38-8
(coupling of, amide, to silanized platinum and ruthenium oxide
electrode)
- IT 12035-82-4 12036-10-1
(**electrodes**, alkylaminesilane modified,
tetrathiafulvalene on)
- IT 1760-24-3
(in oxide **electrode** modification)
- IT **69806-02-6**
(on surface of platinum oxide and ruthenium oxide
electrodes)
- L69 ANSWER 11 OF 11 HCA COPYRIGHT 2007 ACS on STN
- 89:119640 Chemically modified **electrodes**. II. Predictability
of formal potentials of covalently immobilized charge-transfer
reagents. Lenhard, J. R.; Rocklin, R.; Abruna, H.; Willman, K.;
Kuo, K.; Nowak, R.; Murray, Royce W. (Kenan Lab. Chem., Univ. North
Carolina, Chapel Hill, NC, USA). Journal of the American Chemical
Society, 100(16), 5213-15 (English) 1978. CODEN: JACSAT. ISSN:
0002-7863.
- AB A series of redox reagents was covalently immobilized on metal oxide
(SnO₂, RuO₂, PtO) and glassy C **electrodes**. The
immobilized redox reagents include tetraphenylporphyrin and
metallotetraphenylporphyrins, nitroaroms., Ru(II) complexes,
tetrathiafulvalens, and ferrocenes. Comparison of formal potentials
E0' for electron transfer reactions of immobilized reagents with
those of their nonimmobilized soln. analogs reveals for 33
comparisons an av. difference of only 36 mV. E0' values are thus
moderately insensitive to the act of immobilization, supporting the
predictable character of chem. modified **electrodes**.
- IT **67610-67-7**
(**electrodes** modified with, elec. potential of)
- RN 67610-67-7 HCA
- CN 1,3-Dithiole-4-carboxamide, 2-(1,3-dithiol-2-ylidene)- (9CI) (CA
INDEX NAME)



- CC 72-7 (Electrochemistry)
 Section cross-reference(s): 78
- ST chem modified **electrode** redox reagent; porphyrin modified **electrode** formal potential; ferrocene modified **electrode** formal potential; nitroarom modified **electrode** formal potential; thiafulvalene modified **electrode** formal potential; carbon modified **electrode** formal potential; tin oxide **electrode** formal potential; ruthenium oxide **electrode** formal potential
- IT **Electrodes**
 (chem.-modified, immobilized charge-transfer complexes in relation to)
- IT 1273-82-1 65111-66-2D, derivs. 67594-85-8 67606-09-1
 (**electrode** modified with, elec. potential of)
- IT 1760-24-3
 (**electrodes** modified with redox reagents and, elec. potential of)
- IT 67606-10-4
 (**electrodes** modified with, elec. potential at)
- IT 121-81-3 619-80-7 645-09-0 1287-17-8 12176-38-4 32994-56-2
 33519-09-4 63057-26-1 65319-83-7 67595-95-3 67595-96-4
 67595-97-5 67595-98-6 67595-99-7 67606-11-5 **67610-67-7**
 (**electrodes** modified with, elec. potential of)
- IT 7440-44-0, uses and miscellaneous 12035-82-4 12036-10-1
 (**electrodes**, chem.-modified)
- IT 18282-10-5
 (**electrodes**, chem.-modified)

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